

EXHIBIT 9

REDACTED

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION**

THE STATE OF TEXAS, et al.	§	
	§	
Plaintiffs,	§	
	§	Civil Action No. 4:20-cv-00957-SDJ
vs.	§	
	§	
GOOGLE LLC,	§	
	§	JURY TRIAL DEMANDED
Defendant.	§	
	§	
	§	
	§	

PLAINTIFFS’ SECOND SET OF REQUESTS FOR PRODUCTION (NOS. 2-18)

In accordance with Federal Rules of Civil Procedure 26 and 34, and Eastern District of Texas Local Rule CV-26, Plaintiffs hereby request that Defendant produce documents to Shawn Cowles and David Ashton, Texas Office of the Attorney General, 300 W. 15th Street, 7th Floor, Austin, Texas 78701, or if delivered by mail, at P.O. Box 12548, Austin, Texas 78711, as specified below. Documents produced by Defendant must adhere to the Definitions and Instructions set forth below, the conditions of Rule 34 of the Federal Rules of Civil Procedure, and Eastern District of Texas Local Rule CV-26. The documents and things to be produced are described as follows:

Instructions

1. To the extent that Documents responsive to one of these requests has already been produced, identify any such Documents by BATES label.
2. These requests are continuing in nature and should be updated regularly.
3. Pursuant to Rule 34(b)(1)(C), produce all Documents in their Native Form. To the extent that a Document has otherwise been produced to Plaintiffs in a different form, produce all native versions with a label corresponding to the first page, if any, of documents produced in another form. For example, if a Document was produced with four images using BATES labels EXAMPLE_0000007-0000010, the native version would have the BATES label EXAMPLE_0000007. The native, if any, for the subsequent Document would be labeled EXAMPLE_0000011.
4. Explain in detail the process used to identify and collect Documents responsive to each request for production. Your explanation should include *inter alia* the extent to which search terms were utilized, if at all, and a general description of the collection of documents to which the search terms were applied.
5. If You contend that a request in this document encompasses another request in this document or a prior document, please identify the request or requests that are allegedly encompassed. However, produce all documents responsive to said request that are not otherwise encompassed by said other request. For example, if You contend that all documents responsive to RFP 25 are also responsive to RFP 30, state that this is Your contention, produce and identify documents that are responsive to RFP 25, and also produce and identify documents that are responsive to RFP 30 that are not also responsive to RFP 25. This instruction does not modify Google's obligation to produce all responsive Documents to each request for production.

6. If You contend that a request in this document is encompassed by a request in this document or a prior document, please identify any such other requests and further identify by BATES label the documents that You contend are only responsive to the allegedly encompassed request. For example, if You contend that RFP 26 is encompassed by RFP 14, identify the documents that You contend are responsive to RFP 26. This instruction does not modify Google's obligation to produce all responsive documents to each request for production.

7. If all or any portion of any responsive document is withheld for any reason, including a claim of attorney-client privilege, any other applicable privilege or immunity, or judicial order, please submit, within the time permitted for a response, a list of the documents withheld and state individually as to each document: (1) the source of the document; (2) the name, address, position, and organization of the author and recipient of the document; (3) the type, title, specific matter, length, and date of the document; and (4) the legal or factual basis for withholding the document, including, but not limited to, a general description of the redacted matter and an identification of the actual or anticipated litigation for a claim based on work product immunity.

Definitions

As used herein:

1. “**Ad Auction**” shall mean any auction to sell Ad Inventory in the Display Advertising Market.

2. “**Ad Exchange**” shall mean a digital marketplace for Ad Inventory that Publishers and Advertisers connect to, by direct or indirect means, in order to buy or sell their online Ad Inventory, including, but not limited to, AdX, AppNexus, The Rubicon Project, OpenX, ONE by AOL, or Oath, and including all predecessors and successors.

3. “**Ad Impression**” shall mean that specific advertisement displayed to a particular user in a specific ad space on a Publisher’s website.

4. “**Ad Inventory**” shall mean the ad space or impressions that any Publisher has available to sell in the Display Advertising Market.

5. “**Ad Request**” shall mean an electronic message sent from a browser to a Publisher Ad Server, SSP, or Ad Exchange requesting advertising content for insertion or incorporation into a web page. An Ad Request may be directed to a portion or the entirety of a web page, and it may include or consist of a Bid Request.

6. “**AdTech Products**” shall mean any and all systems and software, including predecessors and successors, used in the process of identifying, selecting, transmitting, and/or rendering display ads on a desktop or mobile device, as well as all systems and software, including predecessors and successors, that implement and/or effectuate an Ad Auction, including, but not limited to, receiving, processing, and transmitting Bid Requests, Bid Responses, or related messages. The term includes, but is not limited to, Google Ads, Google AdWords, Display & Video 360 (DV360), DoubleClick Bid Manager (DBM), Campaign Manager, DoubleClick

Campaign Manager (DCM), AdX, Google Display Network (GDN), Google Ad Manager (GAM), and DoubleClick for Advertisers (DFA), including all predecessors and successors.

7. “**AdTech Auction Mechanics**” shall mean any and all systems and software that implement, effectuate, or modify any Ad Auction rules, preferences, designs, or features; this term includes, but is not limited to, Exchange Bidding, Open Bidding, Open Auction, Dynamic Allocation, Enhanced Dynamic Allocation, Optimized Competition, Real-Time Bidding, OpenRTB, Floor Pricing, or First Look.

8. “**Advertiser**” shall mean anyone who buys online Ad Inventory on a Publisher’s webpage to serve ads to those internet users who visit a Publisher’s webpage.

9. “**Advertiser Ad Server**” shall mean those tools used by Advertisers to manage their ad campaigns by directing how Advertisers store and deliver advertisements and tracking where ads are served, such as Your DoubleClick Campaign Manager (now known as Campaign Manager).

10. “**AMP Page**” shall mean a webpage designed and served as an accelerated mobile page, as described on the domain <https://amp.dev/>.

11. “**API**” shall mean application programming interface.

12. “**Attribution Model**” shall mean the rule or rules that determine how a purchase is credited or attributed to an ad.

13. “**Authorized Buyer**” shall mean a buyer participating in Your Authorized Buyers program (see <https://support.google.com/authorizedbuyers/answer/9070822>, last visited June 22, 2020).

14. “**Behavioral Data**” shall mean all types of data collected regarding user preferences, statuses, and behaviors, regardless of whether acquired directly from the user (“**First-**

Party Data) or indirectly (**“Second-Party Data”** or **“Third-Party Data”**). Behavioral Data includes, but is not limited to, demographic information, device identification, browser identification, location information, browsing history, and session length.

15. **“Bid Request”** shall mean an electronic message containing (directly or indirectly) various pieces of information about the context of a piece of Ad Inventory (page content, URL, etc.) and the user (e.g., cookie data) that can be used to create a bid to display advertising content in one or more specified locations within a web page, irrespective of whether the message or its contents has been modified for transmission to an Advertiser.

16. **“Bid Response”** shall mean an electronic message generated in response to a Bid Request containing (directly or indirectly) a bid price and various pieces of information concerning proposed advertising content to be displayed in one or more specified locations identified in the corresponding Bid Request.

17. **“September 2019 CID”** or **“CID NO. 1”** shall mean the Civil Investigative Demand (CID) issued to You by the OAG on or about September 9, 2019. A copy of CID NO. 1 is attached hereto as “Exhibit A.”

18. **“June 2020 CID”** or **“CID NO. 2”** shall mean the Civil Investigative Demand (CID) issued to You by the OAG on or about June 22, 2020. A copy of CID NO. 2 is attached hereto as “Exhibit B.”

19. **“Client-Side Header Bidding”** shall mean that form of Header Bidding where the user’s browser transmits one or more Bid Requests and receives one or more Bid Responses.

20. **“Clone”** shall mean an exact copy of a document, Source Code Repository, or wiki, including all commits, comments, versions, and revision history, if any. (See <https://help.github.com/en/github/getting-started-with-github/github-glossary#clone>.) Please

note the instruction above requires any responsive dynamic material (e.g., a wiki or repository) to be produced in electronic format as a Clone of such material, including, but not limited to, all comments, versions, commits, revision history, and material from any associated information tracking systems, including, but not limited to, feature requests, bug reports, issues, sprints, tasks, user stories, project management, and trouble tickets.

21. **“Concerning”** shall mean relating to, referring to, describing, evidencing or constituting.

22. **“Cost-Per-Click”** or **“CPC”** shall mean that method of payment by which Advertisers pay a certain amount of money each time a user clicks on ad space filled by that Advertiser.

23. **“Cost-Per-Mille”** or **“CPM”** shall mean that method of payment by which Advertisers pay a certain amount of money for every thousand Ad Impressions that occur in a given ad space.

24. **“Demand-Side Products”** shall mean Your products that facilitate the purchase of Ad Inventory, including, but not limited to, AdWords, Google Ads, DoubleClick for Advertisers, Google Display Network, DoubleClick Campaign Manager, Google Campaign Manager, DoubleClick Bid Manager, DV360, Google Analytics, Analytics 360, and Google Audience Center.

25. **“Demand Side Platform”** or **“DSP”** shall mean those entities that act on behalf of Advertisers to purchase Ad Inventory by connecting Advertisers to Ad Exchanges or SSPs or help Advertisers find the most effective Ad Impressions, including, but not limited to, Display & Video 360 (DV360), DoubleClick Bid Manager, DataXu, MediaMath, AOL, Turn, the Trade Desk,

Amobee, Rocket Fuel, Audience Science, AppNexus, Xandr, Adform, and Amazon DSP, and including all predecessors and successors bearing the same or similar functionality.

26. **“Direct Sales”** shall mean the portion of Ad Inventory that is sold directly by a Publisher, including programmatic guaranteed line items managed by the Publisher.

27. **“Display Advertising Market”** shall mean that portion of the online advertising market that displays visual-based advertisements on the website of a Publisher.

28. **“Document”** shall mean the original and all non-identical copies (whether different from the original because of notes, underlining, attachments, or otherwise), all computer files, and any written, printed, or recorded material of every kind in the possession, custody, or control of You. The term “computer files” includes information stored in or accessible through computers, portable computers, handheld devices, workstations, minicomputers, mainframes, servers, backup disks and tapes, archive disks and tapes, and other forms of offline storage, whether on or off the premises of Your place of business. This definition covers electronic mail messages (“e-mail”), wikis, slack messages, text messages, social media messages, and other electronic Documents in Your possession, custody, or control.

29. **“DOJ CID NO. 30092”** shall mean Civil Investigative Demand No. 30092 issued by the U.S. Department of Justice on or about August 30, 2019, and directed to Alphabet, Inc.

30. **“DOJ CID NO. 30120”** shall mean Civil Investigative Demand No. 30120 issued by the U.S. Department of Justice on or about October 7, 2019, and directed to Alphabet, Inc.

31. **“DOJ CID NO. 30121”** shall mean Civil Investigative Demand No. 30120 issued by the U.S. Department of Justice on or about October 7, 2019, and directed to Alphabet, Inc.

32. **“DoubleClick for Publishers”** or **“DFP”** shall mean Your Ad Server used to manage Publisher Ad Inventory before it was renamed along with AdX as Google Ad Manger, including any successor or predecessor product bearing the same or similar functionality.

33. **“Dynamic Allocation”** shall mean that feature of DFP introduced in 2014 that changed the procedure for how a winning bid was selected on DFP.

34. **“Email Group”** shall mean any collection of e-mail addresses or user accounts that can be the recipient of an email, including, but not limited to, Google Groups, email distribution lists, and listservs.

35. **“Enhanced Dynamic Allocation”** or **“EDA”** shall mean that feature of DFP that allowed AdX to use Dynamic Allocation on Premium Inventory and Direct Sales of Publishers.

36. **“Extended Time Period”** shall mean that period of time from January 1, 2010 to the present. **“Facebook’s Search Engine”** shall mean a search engine within Facebook that was often referred to as Graph Search.

37. **“First Look”** shall mean the feature of Google Ad Manager described on <https://support.google.com/admanager/topic/9242064> (see also <https://support.google.com/authorizedbuyers/answer/6142666#first-look>), including any equivalent features in other Google AdTech Products.

38. **“Floor Pricing”** shall mean any system, procedure, or rules used to implement, determine, or define the floor price in an Ad Auction (first-price and/or second-price), including, but not limited to, the Unified Floor Pricing Rule described on <https://support.google.com/admanager/answer/9298008>.

39. **“Google Ad Manager”** or **“GAM”** shall mean the product You refer to as Google Ad Manager, which includes Your Ad Server previously known as DFP and Your Ad Exchange

previously known as AdX, as well as any successor or predecessor product bearing the same or similar functionality.

40. **“Google Ad Exchange”** or **“AdX”** shall mean Your Ad Exchange before it was renamed Google Ad Manager, as well as the current Ad Exchange functionality of Google Ad Manager, including any successor or predecessor product bearing the same or similar functionality.

41. **“Google Ads”** or **“AdWords”** shall mean Your Demand Side Platform that allows Advertisers to buy display space on the Google Display Network and/or search advertising, including any successor or predecessor product bearing the same or similar functionality.

42. **“Google Cloud”** shall mean any cloud computing services provided by You under the brand Google Cloud, including any successor or predecessor product or service bearing the same or similar functionality. (See <https://cloud.google.com/>)

43. **“Google Display & Video 360”** or **“DV360”** shall mean the advertising product for managing the purchasing of Ad Inventory for Advertisers, which you currently market under the name DV360, and shall include any successor or predecessor products bearing the same or similar functionality, including DoubleClick Campaign Manager, Google Audience Center, DoubleClick Studio, and DoubleClick Bid Manger.

44. **“Google Group”** shall have the meaning of the term as used on the webpage <https://support.google.com/a/answer/33329>, including email distribution lists, collaborative inboxes, and Q&A forums. The term “Google Group” shall include any computer account that can be assigned or has been assigned access rights for a computer resource, has been assigned an email address, and/or can serve as a proxy or an alias for a collection of one or more other computer accounts. Exhibit C includes a list of Google Groups that are identified by their aliases

45. **“Google Plus” or “Google+”** shall mean the social network operated by Google which was launched in or around 2011.

46. **“Google Publisher Tag”** shall have the same meaning as found at <https://developers.google.com/doubleclick-gpt/>.

47. **“Header Bidding”** shall mean that form of Ad Auction where Ad Exchanges and/or SSPs are invited to submit bids for an Ad Impression before an Ad Request is sent to the Publisher Ad Server.

48. **“Identify”** means, with respect to a Document, to give, to the extent known, the type of Document, the general subject matter, the date of the Document, as well as the author, addressees, and recipients of the Document.

49. **“Identify”** means, with respect to a Person, to give, to the extent known, the Person’s full name, title, and, when referring to a natural Person, additionally, the present or last known place of employment. Once a Person has been first identified in accordance with this definition, only the name of that Person need be listed in response to subsequent discovery requesting the identity of that Person.

50. **“Jedi Blue Agreement”** shall mean the agreement between Google and Facebook referred to in paragraph 217 (among other paragraphs) in the plaintiffs’ March 15, 2021 Amended Complaint in this action.

51. **“Last Look”** shall mean any ability for You to bid on Ad Inventory after all other bids have been submitted and to know the amount of the bid that You need to beat in order to win the Ad Auction.

52. **“Last Touch Attribution”** shall mean those types of Attribution Models whereby credit for a consumer’s purchase is assigned based on the consumer’s last point of contact.

53. **“Native” or “Native Format”** for an electronic document shall mean the format in which it is ordinarily stored as a separate file. In the case of documents that are commonly stored online or “in the cloud,” Native Format means the format with the nearest functionality to its online equivalent—not necessarily the format with the nearest appearance. *See, e.g.,* https://support.google.com/vault/answer/6099459#drive_export. Unless a file is ordinarily stored as a PDF, extracting or exporting this file as a PDF is not its native format.

54. **“OAG”** means the Office of the Attorney General of Texas.

55. **“Open Bidding” or “Exchange Bidding”** shall mean that feature of DFP which enables Publishers using DFP to connect to demand from third-party Ad Exchanges to AdX over a server-to-server connection, allowing multiple Ad Exchanges to submit bids simultaneously. This definition also includes any successor or predecessor AdTech Auction Mechanics bearing the same or similar functionality, e.g., any and all iterations of the pre-release projects You refer or have referred to as Jedi (e.g., Jedi+, Jedi++) or Demand Syndication.

56. **“Open Bidding Partner” or “Exchange Bidding Partner” or “Yield Partner”** shall mean any Ad Exchange, SSP, Advertiser, or other buyer, who is configured to and authorized to interface with Your Real-Time Bidding infrastructure to receive Bid Request messages and to submit corresponding Bid Response messages. (*See* <https://developers.google.com/authorized-buyers/rtb/open-bidding#receive-bid-requests-with-bidrequest>; <https://support.google.com/admanager/answer/7128453>.)

57. **“Optimized Competition”** shall mean the feature of Google Ad Manager described on <https://support.google.com/admanager/answer/7422526>, including any equivalent or similar functionality in other Google AdTech Products.

58. **“Person”** is defined as set forth in TEX. BUS. & COM. CODE § 15.03(3), and includes any natural person, corporate entity, partnership, association, joint venture, government entity, or trust.

59. **“Publisher”** shall mean anyone who serves content on the internet that is monetized by selling Ad Inventory to Advertisers.

60. **“Publisher Ad Servers”** shall mean those tools used by Publishers to determine how Ad Inventory is filled, including, but not limited to, DFP, Google Ad Manager, OpenX, FreeWheel, or AdZerk, or any predecessors or successors bearing the same or similar functionality.

61. **“Real-Time Bidding”** or **“RTB”** shall mean that process by which Advertisers submit bids for Ad Impressions in real-time.

62. **“Relating to”** shall mean in whole or in part constituting, containing, concerning, embodying, reflecting, discussing, describing, analyzing, identifying, stating, referring to, dealing with, or in any way pertaining to.

63. **“Relevant to Any Party’s Claim or Defense”** as used in Federal Rule of Civil Procedure 26 shall include the observations described in Eastern District of Texas Local Rule CV-26(d).

64. **“RTC”** or **“Realtime Config”** shall mean that feature of AMP that enables Publishers to call up to five other servers for each piece of Ad Inventory (*See <https://github.com/ampproject/amphtml/blob/master/extensions/amp-a4a/rtc-documentation.md>*.)

65. **“Source Code”** shall mean human-readable instructions written in a language that can be executed by a computer. The term “Source Code” includes instructions that can be understood by an interpreter as well as instructions that must first be compiled or assembled prior to execution by a computer. The term “Source Code” further includes any associated files,

including, but not limited to, comments, read me files, and change logs, without regard to whether these files can be executed.

66. **“Source Code Repository”** shall mean a file archive, web hosting facility, or platform for the storage, development, and version control of Source Code, including associated documentation, web pages, and other works. This term includes, but is not limited to, GitHub, SVN, Google Code, and SourceForge. This term also includes all associated branches, forks, and submodules of each said repository.

67. **“Supply Side Platforms” or “SSP”** shall mean those entities that organize demand for Ad Inventory and connect Publishers to Ad Exchanges to sell Ad Inventory, including those that allow Publishers to connect to DSPs, such as AdX, AppNexus, Xandr, PubMatic, Rubicon Project, OpenX, One by AOL, and Oath, or any predecessors or successors bearing the same or similar functionality.

68. **“T-50 Advertisers”** shall mean those top fifty Advertisers identified in response to CID NO. 1, interrogatory number 123.

69. **“T-50 Publishers”** shall mean those top fifty Publishers identified in response to CID NO. 1, interrogatory number 124.

70. **“Unified Auction”** shall mean that feature of Open Bidding that allows Open Bidding Partners, DSPs, Header Bidding winners, and Direct Sales to compete in a simultaneous first-price Ad Auction.

71. **“You,” “Your,” “Alphabet,” or “Google”** shall mean Alphabet Inc., its past and present officers, employees, agents and representatives, parents and predecessors, divisions, subsidiaries, affiliates, partnerships and joint ventures. The terms “subsidiary,” “affiliate,” and

“joint venture” refer to any firm in which there is total or partial ownership of twenty-five percent or more or total or partial control between the company and any other Person or entity.

Requests

REQUEST FOR PRODUCTION NO. 2

All Documents responsive to the requests in the September 2019 CID (attached as Exhibit A).

REQUEST FOR PRODUCTION NO. 3

All Documents responsive to requests 1-108 and 111-132 of the June 2020 CID (attached as Exhibit B).

REQUEST FOR PRODUCTION NO. 4

All communications sent to, from, or on behalf of any Google Group associated with Google's AdTech Products, including, but not limited to, the Google Groups identified by their aliases in Exhibit C.

REQUEST FOR PRODUCTION NO. 5

All communications sent to, from, or on behalf of any messaging system associated with Google's AdTech Products, including, but not limited to, slack channels, message boards, hangouts, and wikis.

REQUEST FOR PRODUCTION NO. 6

All Documents owned by or shared with any Google Group that is associated with Google's AdTech Stack, including, but not limited to, the Google Groups identified in Exhibit C.

REQUEST FOR PRODUCTION NO. 7

All Documents shared using, sent through, or saved within any messaging system used to discuss the operation or development of Google's AdTech Stack, including, but not limited to, slack channels, message boards, hang outs, and wikis.

REQUEST FOR PRODUCTION NO. 8

All Documents, answers to interrogatories, written questions, responses to Civil Investigative Demands, subpoenas, correspondence, and all other written material that You receive[d] from or submit[ted] to the United States Department of Justice relating to any investigation into Google's online advertising business, including, but not limited to, all material submitted in response to DOJ CID NO. 30092, DOJ CID NO. 30120, or DOJ CID NO. 30121.

REQUEST FOR PRODUCTION NO. 9

To the extent that access rights for a Document produced in this litigation or in response to a CID are based on membership in one or more Google Groups, produce Documents sufficient to identify the members of all such Google Groups.

REQUEST FOR PRODUCTION NO. 10

All Documents exchanged between Google and Facebook concerning or relating to Google+.

REQUEST FOR PRODUCTION NO. 11

All Documents concerning or relating to Google's decision to discontinue Google+, including, but not limited to, Documents concerning or relating to the specific reasons that Google discontinued Google+.

REQUEST FOR PRODUCTION NO. 12

All Documents in which Google+ and the Jedi Blue Agreement, or the issues addressed in the Jedi Blue Agreement, were mentioned directly or indirectly in the same document.

REQUEST FOR PRODUCTION NO. 13

All Documents exchanged between Google and Facebook concerning or relating to Facebook's Search Engine.

REQUEST FOR PRODUCTION NO. 14

All Documents in which Facebook's Search Engine and the Jedi Blue Agreement, or the issues addressed in the Jedi Blue Agreement, were mentioned directly or indirectly in the same document.

REQUEST FOR PRODUCTION NO. 15

All Documents concerning or relating to Facebook's decision to discontinue Facebook's Search Engine.

REQUEST FOR PRODUCTION NO. 16

All Documents exchanged between Google and Facebook concerning or relating to Facebook's mobile web advertising business.

REQUEST FOR PRODUCTION NO. 17

All Documents concerning or relating to Facebook's decision to discontinue mobile web advertising in or around 2020.

REQUEST FOR PRODUCTION NO. 18

All Documents in which Facebook's mobile web advertising and the Jedi Blue Agreement, or the issues addressed in the Jedi Blue Agreement, were mentioned directly or indirectly in the same document.

Respectfully Submitted,

Dated: **April 30, 2021**

/s/ Ashley Keller
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Attorneys for Plaintiff States of Texas, Idaho, South Dakota, and North Dakota

On behalf of all Plaintiff States

CERTIFICATE OF SERVICE

I hereby certify that on this 30th day of April, 2021, a true and correct copy of the foregoing was served on the following counsel of record by Certified Mail, Return Receipt Requested, and via email delivery:

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/s/ Zeke DeRose III
Zeke DeRose III

EXHIBIT A



Office of the Attorney General
State of Texas

CIVIL INVESTIGATIVE DEMAND

To: Alphabet Inc.
c/o Kevin Yingling
25 Massachusetts Avenue, NW
9th Floor
Washington, DC 20001
202.346.1282
kyingling@google.com

The Office of the Attorney General of Texas ("OAG") is investigating anticompetitive conduct in markets relating to online advertising in Texas and the rest of the United States. Such activity may violate Section 15.05(b) of the Texas Free Enterprise and Antitrust Act of 1983, Tex. Bus. & Com. Code § 15.01 *et seq.* (the "Act").

The OAG has reason to believe that you may have information and/or material relevant to its investigation and is therefore issuing you this Civil Investigative Demand ("CID") pursuant to Section 15.10 of the Act. Please review the following instructions and definitions carefully before responding to this CID. The documents you submit must be produced under a sworn certificate in the form attached as Exhibit A. Your response should be submitted **on or before October 9, 2019** to Assistant Attorney General David M. Ashton, Antitrust Division, Texas Office of the Attorney General, 300 W. 15th Street, 7th Floor, Austin, Texas 78701 or, if delivered by mail, at P.O. Box 12548, Austin, Texas 78711.

Section 15.10(i)(5) of the Act governs OAG's treatment of documents designated as containing trade secrets or confidential information. You should clearly designate documents or

portions thereof, if any, that contain trade secrets or confidential information.

NOTICE

Any person who, with intent to avoid, evade, or prevent compliance, in whole or in part, with a CID, removes from any place, conceals, withholds, destroys, mutilates, alters, or by any other means falsifies any documentary material, or otherwise provides inaccurate information, is guilty of a misdemeanor which, on conviction, is punishable by a fine of not more than \$5,000, or by confinement in county jail for not more than one year, or both. Objections to this demand may be made in accordance with Section 15.10 of the Act.

Issued on September 9, 2019.

KEN PAXTON
Attorney General of Texas

JEFFREY C. MATEER
First Assistant Attorney General

DARREN McCARTY
Deputy Attorney General for Civil Litigation

KIM VAN WINKLE
Chief, Antitrust Division

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Assistant Attorney General
Antitrust Division
(512) 936-1781
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David.Ashton@oag.texas.gov

CERTIFICATE OF SERVICE

I certify that on September 9, 2019, a true and correct copy of this Civil Investigative Demand was sent via certified mail, return receipt requested, and via electronic mail, addressed as follows:

Alphabet Inc.
c/o Kevin Yingling
25 Massachusetts Avenue, NW
9th Floor
Washington, DC 20001
202.346.1282
kyingling@google.com

David M. Ashton
Assistant Attorney General

INSTRUCTIONS

1. Except as otherwise specified, this CID requires production of documents and information from January 1, 2014 to present day.
 - A. **This request is continuing in nature.** To the extent that Documents or information responsive to this CID are obtained or generated after the issuance of this CID, Your production and responses should be supplemented accordingly.
2. For Your response to this CID to be complete, the certification form attached as **Exhibit A** must be executed by the official supervising compliance with this CID, notarized, and submitted along with the responsive materials and information.
3. For the purposes of the request for documents, the following instructions apply:
 - A. No copying costs will be reimbursed unless a representative from the OAG has provided written approval, prior to submission, of the estimated cost of providing copies of the non-electronic documents requested in this CID. All other costs of complying with this CID will be borne by You.
 - B. If all or any portion of any responsive document is withheld for any reason, including a claim of attorney-client privilege, any other applicable privilege or immunity, or judicial order, please submit a list of the documents withheld and state individually as to each document: (1) the source of the document; (2) the name, address, position and organization of the author and recipient of the document; (3) the type, title, specific matter, length and date of the document; and (4) the reason for withholding the document, including, but not limited to, identifying the actual or anticipated litigation that underlies a claim of work product immunity.
 - C. Documents produced electronically must comply with the Specifications for Electronic Document Production attached hereto as **Exhibit B**.
 - D. All documents responsive to this request for documents, regardless of format or form and regardless of whether submitted in paper or electronic form:
 - a. shall be produced in complete form, unredacted unless privileged, and in the order in which they appear in Your files and shall not be shuffled or otherwise rearranged. For example:
 - i. if in their original condition papers were stapled, clipped or otherwise fastened together or maintained in file folders, binders, covers or containers, they shall be produced in such form, and any documents that must be removed from their original folders, binders, covers or containers to be produced shall be identified in a manner so as to clearly specify the folder, binder, cover or container from which such documents came; and
 - ii. if in their original condition electronic documents were maintained in folders or otherwise organized, they shall be produced in such form and information shall be produced so as to clearly specify the folder or organization format;
 - b. shall be produced in color where necessary to interpret the document;
 - c. shall be marked on each page with corporate identification and consecutive document control numbers;

- d. shall be accompanied by an index that identifies: (i) the name of each person from whom responsive documents are submitted; and (ii) the corresponding consecutive document control number(s) used to identify that person's documents, and if submitted in paper form, the box number containing such documents. If the index exists as a computer file(s), provide the index both as a printed hard copy and in machine-readable form (provided that OAG representatives determine prior to submission that the machine-readable form would be in a format that allows the agency to use the computer files).
- E. If books and records that provide accurate responses are not available, enter best estimates and describe how the estimates were derived, including the sources or bases of such estimates. Estimated data should be followed by the notation "est." If there is no reasonable way for You to make an estimate, provide an explanation.
4. If documents responsive to a particular document request no longer exist for reasons other than the ordinary course of business or the implementation of Your document retention policy as disclosed or described in response to an interrogatory or a document request, but You have reason to believe have been in existence, state the circumstances under which they were lost or destroyed, describe the documents to the fullest extent possible, state the document request(s) to which they are responsive, and identify persons having knowledge of the content of such documents.
5. If there have been any changes that affected Your answer to an interrogatory during the time period applicable to that interrogatory, or if Your response to an interrogatory would have been different at any point during the time period applicable to that interrogatory, Your response must describe those changes and the reason(s) for those changes.
6. If You are unable to respond to any request for documents or information fully, explain why such response is incomplete, the efforts made by You to obtain the information, and the source from which the complete response may be obtained.
7. The section headings in the interrogatories and document requests are included solely for convenience or reference and shall not in any way affect the meaning or interpretation of any of the specific interrogatories or requests.
8. The terms "and" and "or" have both conjunctive and disjunctive meanings.

**Questions concerning this CID should be directed to Assistant Attorney General
David M. Ashton (512-936-1781, David.Ashton@oag.texas.gov).**

DEFINITIONS

As used herein:

1. **“AMP Page”** shall mean a webpage designed and served as an accelerated mobile page, as addressed on the domain <https://amp.dev/>.
2. **“AMP Project”** shall mean the open-source initiative in which You participate for standardizing code and design of websites for display on mobile devices, as addressed on the domain <https://amp.dev/> and at <https://opensource.google.com/projects/ampproject>.
3. **“Ad Auction”** shall mean any auction to sell Ad Inventory in the Display Advertising Market.
4. **“Ad Exchange”** shall mean a digital marketplace for Ad Inventory that Publishers and Advertisers connect to, by direct or indirect means, in order to buy or sell their online Ad Inventory, including but not limited to AdX, AppNexus, The Rubicon Project, OpenX, or One by AOL.
5. **“Ad Impression”** shall mean that specific advertisement displayed to a particular user in a specific ad space on a Publisher’s website.
6. **“Ad Intermediation Market”** shall mean that market for intermediation in online advertising consisting of Ad Exchanges and Ad Networks.
7. **“Ad Inventory”** shall mean the ad space that any Publisher has available to sell in the Display Advertising Market.
8. **“Ad Network”** shall mean those pools of Ad Inventory that are sold to Advertisers whether bought or sold directly or through an Ad Exchange, such as AdSense.
9. **“Ad Serving Market for Advertisers”** shall mean the market for providing ad serving technologies that help Advertisers manage their ad campaigns.
10. **“Ad Serving Market for Publishers”** shall mean the market for providing ad serving technologies that help Publishers manage their Ad Inventory.
11. **“AdMeld”** shall mean that SSP of the same name that You acquired in 2011.
12. **“AdMeld Merger Period”** shall mean that period of time from January 1, 2010 until December 31, 2012.
13. **“AdMob”** shall mean that Ad Network for mobile devices of the same name that You acquired in 2010.
14. **“AdMob Merger Period”** shall mean that period of time from January 1, 2008 until December 31, 2011.
15. **“AdRank”** shall mean that method for determining a winning bid in an AdWords Auction.
16. **“AdSense”** shall mean Your Ad Network that enables certain Publishers to sell ads to the Google Display Network through AdWords.
17. **“AdSense Auction”** shall mean that auction through which You sell Ad Inventory to the bidder to AdWords and AdX buyers only.

18. **“AdSense Direct”** shall mean that feature of AdSense that allows Publishers to manage Direct Sales through AdSense.
19. **“AdWords”** shall mean Your Demand Side Platform that allows Advertisers to buy display space on a limited number of websites.
20. **“AdWords Auction”** shall mean that auction method for selling AdWords Ad Inventory.
21. **“Advertiser”** shall mean anyone who buys online Ad Inventory on a Publisher’s webpage to serve ads to those internet users who visit a Publisher’s webpage.
22. **“Advertiser Ad Server”** shall mean those tools used by Advertisers to manage their ad campaign by optimizing how Advertisers store and deliver advertisements by tracking where ads are served, such as Your DoubleClick Campaign Manager or DV360.
23. **“AdWords Customer Match”** shall mean Your advertising retargeting product.
24. **“Behavioral Data”** shall mean all types of data collected based on online user preferences and behaviors, regardless of whether acquired directly from the user (**“First-Party Data”**) or indirectly (**“Second-Party Data”** or **“Third-Party Data”**).
25. **“Carousel”** shall mean that collection of news stories, news content, or other articles, displayed or featured in cart-style design near the top of a Google search engine results page.
26. **“Cookie-Matching”** shall mean the process of mapping a user from a Demand Side Platform to a Data Management Platform by giving him/her a unique ID.
27. **“Cost-Per-Click”** or **“CPC”** shall mean that method of payment by which Advertisers pay a certain amount of money each time a user clicks on ad space filled by that Advertiser.
28. **“Cost-Per-Mille”** or **“CPM”** shall mean that method of payment by which Advertisers pay a certain amount of money for every thousand Ad Impressions that occur in a given ad space.
29. **“Client-Side Header Bidding”** shall mean that form of Header Bidding where the user’s browser rather than the DFP invites bids from Advertisers for a specific Ad Impression.
30. **“Data Management Platform”** or **“DMP”** shall mean those data providers who collect, store, classify, analyze, organize, and manage First-Party Data and Third-Party Data and link to or integrate with a DSP, including but not limited to, BlueKai, Weborama, eXelate, Krux, Lotame, and Adobe Audience Manager.
31. **“Deal ID”** shall mean that data or information passed to a DSP along with a bid request that enables the DSP to know that a particular viewer of an Ad Impression belongs to the audience that an Advertiser intends to target with the ad.
32. **“Demand Side Platform”** or **“DSP”** shall mean those entities that act on behalf of Advertisers to purchase Ad Inventory by connecting Advertisers to Ad Exchanges or SSPs or help Advertisers find the most effective Ad Impressions, including but not limited to, DoubleClick Bid Manager, DataXu, MediaMath, AOL, Turn, the Trade Desk, Rocket Fuel, Audience Science, AppNexus, Adform, and Amazon DSP.
33. **“Direct Sales”** shall mean the portion of Ad Inventory that is sold directly by a Publisher.

- 34. **“Display Advertising Market”** shall mean that portion of the online advertising market that displays visual-based advertisements on the website of a Publisher.
- 35. **“Document”** shall mean the original and all non-identical copies (whether different from the original because of notes, underlining, attachments, or otherwise), all computer files, and any written, printed, or recorded material of every kind in the possession, custody, or control of You. The term “computer files” includes information stored in or accessible through computers, portable computers, handheld devices, workstations, minicomputers, mainframes, servers, backup disks and tapes, archive disks and tapes, and other forms of offline storage, whether on or off the premises of Your place of business. This definition covers electronic mail messages (“e-mail”), wikis, slack messages, text messages, social media messages, and other electronic Documents in Your possession, custody, or control.
- 36. **“DoubleClick Merger Period”** shall refer to that time period from January 1, 2007 to January 1, 2010.
- 37. **“DoubleClick Bid Manager”** or **“DBM”** shall mean Your Demand Side Platform that manages the purchasing of Ad Inventory for Advertisers.
- 38. **“DoubleClick Campaign Manager”** or **“DCM”** shall mean Your Demand Side Ad Server that stores and delivers advertisements and helps Advertisers monitor and optimize their ad campaigns.
- 39. **“DoubleClick for Publishers”** or **“DFP”** shall mean Your Ad Server used to manage Publisher Ad Inventory before it was integrated with AdX and renamed Google Ad Manger.
- 40. **“DFP Ad Privacy Policy”** shall mean all iterations of Your advertising privacy policy throughout the Extended Time Period, including all amendments, changes, corrections, and modifications thereto.
- 41. **“DFP Premium”** shall mean that version of Your DFP that charges Publishers based on the number of impressions that their ads receive.
- 42. **“DFP Small Business”** shall mean that version of Your DFP that is offered to Publishers who earn fewer than ninety million total impressions per month.
- 43. **“Dynamic Allocation”** shall mean that feature of DFP introduced in 2014 that changed the procedure for how a winning bid was selected on DFP.
- 44. **“Enhanced Dynamic Allocation”** or **“EDA”** shall mean that feature of DFP that allowed AdX to use Dynamic Allocation on Premium Inventory and Direct Sales of Publishers.
- 45. **“Exchange Bidding Dynamic Allocation”** **“Exchange Bidding”** or **“EBDA”** shall mean that feature of DFP introduced in 2018 which enabled Publishers using DFP to connect to third-party exchanges to AdX over a server-to-server Connection, allowing multiple Ad Exchanges to submit bids simultaneously in a Unified Auction.
- 46. **“Extended Time Period”** shall mean that period of time from January 1, 2010 to the present day.
- 47. **“First-Price Auction”** shall mean that method of Ad Auction where the Publisher is paid the amount that the highest bidder bids, either directly or through an intermediary.
- 48. **“First-Party Cookies”** shall mean those cookies that are associated with the domain of the site a user visits.

49. **“AdX Floor Pricing”** shall refer to that practice of AdX where it uses the highest estimated price of the Ad Exchange at the top of the Waterfall as the price floor in an AdX auction.
50. **“Google Ad Manager”** shall mean Your Ad Server previously identified as DFP and DFP after it was integrated with AdX.
51. **“Google Ad Exchange”** or **“AdX”** shall mean Your Ad Exchange before it was integrated with DFP to form Google Ad Manager.
52. **“Google AdWords”** or **“AdWords”** shall mean that computer program that enables Advertisers to create ads to appear on relevant search results pages.
53. **“Google AdX Seller”** shall mean that Ad Network sales platform on AdX that allows Publishers to manage Direct Sales.
54. **“Google Analytics”** shall mean Your enterprise-level data analytics product.
55. **“Google Audience Center”** shall mean Your Data Management Platform that integrated with DoubleClick Bid Manager.
56. **“Google Certified Ad Networks”** shall mean those Ad Networks to which AdSense limits sales to AdWords and AdX buyers.
57. **“Google Cookie Matching”** shall mean that service provided by You that associates a DoubleClick cookie with a buyer-specific encrypted ID and a cookie associated and matches that cookie with a cookie from user’s web browser within a buyer’s domain.
58. **“Google Display Network”** or **“GDN”** shall mean that network of Publishers that sell Ad Inventory through AdSense and AdX Seller.
59. **“Google Display & Video 360”** or **“DV360”** shall mean that advertising product that manages the purchasing of Ad Inventory for Advertisers after DoubleClick Campaign Manager, Google Audience Center, and DoubleClick Studio were integrated with DoubleClick Bid Manger.
60. **“Google Marketing Platform”** shall mean that marketing platform launched by You in 2018 that unified Google Analytics and DoubleClick under a single brand.
61. **“Header Bidding”** shall mean that form of Ad Auction where Ad Exchanges and SSPs are invited to submit bids for an Ad Impression through Pre-Auction Bidding simultaneously in a Unified Auction, conducted outside of DFP.
62. **“Identify”** with respect to a Document means to give, to the extent known, the type of Document, the general subject matter, the date of the Document, and the author, addressees, and recipients of the Document.
63. **“Identify”** with respect to a Person means to give, to the extent known, the Person’s full name, title, and when referring to a natural Person, additionally, the present or last known place of employment. Once a Person has been first identified in accordance with this definition, only the name of that Person need be listed in response to subsequent discovery requesting the identity of that Person.
64. **“Intermediated Sales”** shall mean the sale of Ad Inventory by an intermediary, or otherwise Ad Inventory not sold by the Publisher itself.

- 65. **“Invite Media Merger Period”** shall mean that period of time from January 1, 2009 until December 31, 2012.
- 66. **“Non-Premium Inventory”** shall mean that Ad Inventory that is not Premium Inventory or Remnant Inventory.
- 67. **“Person”** is defined as set forth in TEX. BUS. & COM. CODE § 15.03(3), and includes any natural person, corporate entity, partnership, association, joint venture, government entity, or trust.
- 68. **“Pre-Auction Bidding”** shall mean that feature of Header Bidding where the active bidding process takes place before a user’s browser or third-party server asks DFP to serve the ad and before the webpage starts loading.
- 69. **“Premium Inventory”** shall mean the most expensive high yield Ad Inventory that a Publisher has available, generally at the top of a webpage.
- 70. **“Programmatic Advertising”** shall mean that computerized decision-making process where Ad Inventory in the Display Advertising Market is managed and sold.
- 71. **“Publisher”** shall mean anyone who serves content on the internet that is monetized by selling Ad Inventory to Advertisers.
- 72. **“Publisher Ad Servers”** shall mean those tools used by Publishers to determine how Ad Inventory is filled, such as DFP, Google Ad Manager, OpenX or AdZerk.
- 73. **“Real-Time Auction”** shall mean that process by which Advertisers bid on Ad Inventory directed at a particular user in real time where the Ad Impression is awarded to the highest bidder.
- 74. **“Real-Time Bidding”** or **“RTB”** shall mean that process by which Advertisers submit bids for Ad Impressions in real-time.
- 75. **“Relating to”** shall mean in whole or in part constituting, containing, concerning, embodying, reflecting, discussing, describing, analyzing, identifying, stating, referring to, dealing with, or in any way pertaining to.
- 76. **“Remnant Inventory”** shall mean Ad Inventory whose delivery has not been guaranteed by the Publisher.
- 77. **“Search Advertising Market”** shall mean that type of Header Bidding where the Pre-Auction Bidding takes place on a remote server instead of a user’s browser.
- 78. **“Second-Price-Auction”** shall mean that type of auction where the winning bid is awarded to the highest bidder, but the price the Advertiser pays for the winning bid is only slightly more than the second-highest bid submitted.
- 79. **“Server-Side Header Bidding”** shall mean that type of Header Bidding where the Pre-Auction Bidding takes place in third-party server instead of in a user’s browser.
- 80. **“Software Development Kit”** or **“SDK”** shall mean any software that is used to collect data from user behavior within a specific application on a mobile device.
- 81. **“Smart Pricing”** shall mean that practice of You that automatically reduces bids for ad space with historically poor performance.

82. **“Supply Side Platforms” or “SSP”** shall mean those entities that organize demand for Ad Inventory and connect Publishers to Ad Exchanges to sell Ad Inventory, including those that allow Publishers to connect directly to DSPs, such as AdX, AppNexus, PubMatic, Rubicon Project, OpenX, and One by AOL.
83. **“T-50 Advertisers”** shall mean those top fifty Advertisers identified in response to interrogatory number 123.
84. **“T-50 Publishers”** shall mean those top fifty Publishers identified in response to interrogatory number 124.
85. **“Third-Party Cookies”** shall mean those cookies that are associated with a domain that is different from the domain of the site a user visits, such as those used by Your Ad Server, Google Ad Manager.
86. **“Unified Auction”** shall mean that feature of Exchange Bidding which allows all third-party Ad Exchanges that are connected to AdX to compete in an Ad Auction.
87. **“Waterfall”** shall refer to that system under which a Publisher could connect to several Ad Exchanges through DFP that were ranked according to their average historical yield to avoid relying on only one Ad Exchange.
88. **“You”, “Your”, “Alphabet”, or “Google”** shall mean Alphabet Inc., its past and present officers, employees, agents and representatives, parents and predecessors, divisions, subsidiaries, affiliates, partnerships and joint ventures. The terms “subsidiary”, “affiliate”, and “joint venture” refer to any firm in which there is total or partial ownership of twenty-five percent or more or total or partial control between the company and any other Person or entity.

INTERROGATORIES

Acquisitions

1. Explain Your business rationale for Your acquisition of DoubleClick in 2008 and Identify any projects or other efforts by You to enter the Display Advertising Market prior to Your acquisition of DoubleClick. The time period applicable to this Interrogatory is the DoubleClick Merger Period.
2. Explain Your business rationale for Your acquisition of AdMob in 2010 and Identify any projects or other efforts by You to enter the Mobile Advertising Market prior to Your acquisition of AdMob. The time period applicable to this Interrogatory is the AdMob Merger Period.
3. Explain Your business rationale for Your acquisition of Invite Media in 2010.
4. Explain Your business rationale for Your acquisition of AdMeld in 2011.

Integrations

5. Explain Your business rationale for integrating AdMob and Invite Media into AdX.
6. Explain Your business rationale for integrating DFP and AdX into Google Ad Manager.
7. Explain Your business rationale for unifying Google Analytics and DoubleClick into Google Marketing Platform.
8. Explain Your business rationale for integrating DV360 into Google Marketing Platform.

Google Display Network

9. Explain the relationship between AdWords and AdSense.
10. Explain the relationship between AdSense and AdX Seller.
11. Explain how AdWords, AdSense, and AdX Seller interact with the Google Display Network.
12. Explain Your business rationale for using AdSense to limit AdWords and AdX buyers to purchasing only from Google-Certified Ad Networks.
13. Explain Your business rationale for requiring AdX sellers to purchase Ad Inventory through AdX in order to interact with buyers from sales platforms other than AdX Seller.
14. Identify the types of Behavioral Data that You collect, have collected, or can collect through or for use with AdWords, DoubleClick Campaign Manager, and DoubleClick Bid Manager, and describe how that Behavioral Data is maintained.

Google Display & Video 360

15. Explain the pricing structure for DV360. Include in Your response any discounts, bundled or otherwise, that Advertisers are eligible for, and Identify the criteria that an Advertiser must meet to be eligible for any such discount.

AdWords & Ad Sense Auctions

16. Explain how AdWords conducts an Ad Auction and selects a winning bid.

17. Explain how the price is determined for the winning bid in an AdWords Auction.
18. Describe how a Second-Price-Auction works in AdWords.
19. Explain how AdSense conducts an Ad Auction and selects a winning bid, including the role of AdRank in the process.
20. Explain how the price is determined for the winning bid in an AdSense Auction.
21. Describe how a Second-Price-Auction works in AdSense.
22. Explain Your business rationale for using Smart Pricing in an AdSense Auction to automatically reduce bids for certain Ad Inventory.

DoubleClick for Publishers

23. Explain how a user's browser interacts with DFP.
24. Explain the process of how DFP identifies whether or not an ad that was sold directly by the Publisher is eligible to be served to a user.
25. Explain the process of how DFP triggers AdWords to invite Advertisers to submit bids for an Ad Impression.
26. Explain the process of how DFP interacts with Ad Exchanges to submit bids for an Ad Impression.
27. Explain the process of how DFP interacts with AdX to collect bids for an Ad Impression.
28. Explain Your business rationale for offering DFP Small Business to Publishers for free.
29. Explain Your business rationale for charging Publishers for access to DFP Premium based on the number of impressions their ads receive.
 - a. State how much You charge each Publisher per Ad Impression on DFP Premium.
 - b. Explain Your business rationale for not including impressions sold through AdSense in this pricing model.
 - c. Explain Your business rationale for not including impressions sold through AdX Seller in this pricing model.
 - d. Identify the revenue of DFP by fiscal quarter for the Extended Time Period.
30. Identify the costs of running DFP by fiscal quarter for the Extended Time Period. To the extent that DFP Small Business and DFP Premium differ on cost, please distinguish between the costs of each.

Google Ad Exchange

31. Explain how AdX conducts an Ad Auction and selects a winning bid.
32. Explain how DSPs and Ad Networks submit bids for Ad Inventory and Ad Impressions. As part of Your response:
 - a. Explain how AdX processes bids from DSPs and Ad Networks.

- b. Explain how AdX interacts with other Ad Exchanges to submit a bid for an Ad Impression.
 - c. Explain how DSPs and Ad Networks compete within AdX.
 - d. Explain how DSPs and Ad Networks compete with AdWords for Ad Impressions.
 - e. Explain how AdX competes with third-party Ad Exchanges.
33. Explain how and why an AdX Auction is optimized. As part of Your response:
- a. Explain why You might choose to close an AdX Auction at a price lower than the reserve price.
 - b. Identify the types and purposes of any experiments AdX runs in order to optimize the AdX Auction.
 - c. Identify each factor that is considered by You in exercising Your discretion to optimize an AdX Auction.
34. Explain Your business justification for imposing a mandatory minimum ad spend on buyers for purchasing Ad Inventory through AdX. As part of Your response:
- a. Identify the types of customers that are subject to this mandatory minimum.
 - b. Explain Your business justification for why You only consider ad spend that is purchased through DBM to satisfy the mandatory minimum requirements on buyers for purchasing Ad Inventory on AdX.

Data Management Platforms

35. Identify any DMP that requested to connect to, interoperate with, or integrate with DBM or Google Audience Center.
- a. For each company that You granted such a request, explain why such request was granted.
 - b. For each company that was denied such a request, explain why such request was denied.
36. Identify the types and sources of data collected by DBM and Google Audience Center.
37. Explain Your business justification for prohibiting DMPs from using tracking pixels on GDN unless the DMP also owns the DSP executing the transaction.
38. Explain Your business justification for prohibiting DMPs from operating on AdSense, GDN, or any other Ad Network owned or operated by You.
39. Identify the DMPs that are allowed to use tracking pixels on GDN.

Retargeting

40. Identify the types and sources of data that You rely upon for retargeting campaigns.
41. Explain how You collect the data that You rely upon for retargeting campaigns on Chrome.
42. Explain how You collect the data that You rely upon for retargeting campaigns on mobile devices.

43. Identify each product that competes with AdWords Customer Match to provide retargeting services.
44. Explain the advantages of using AdWords Customer Match over other retargeting products.
45. Explain how Google Analytics evaluates the success of an AdWords Customer Match retargeting campaign.
46. Explain how Cookie-Matching facilitates bidding in a retargeting campaign.
47. Explain the extent to which You make Deal ID's available to third-party DSPs or third-party DMPs.

Dynamic Allocation

48. Explain how Ad Exchanges are or were ranked according to a Waterfall without enabling Dynamic Allocation. In Your response:
 - a. Explain how the performance of Ad Exchanges are measured when Dynamic Allocation is not enabled; and
 - b. Detail the types and sources information used to make ranking determinations when Dynamic Allocation is not enabled.
49. Explain how You ranked or rank Ad Exchanges when Dynamic Allocation is enabled. In Your response:
 - a. Identify the factors that You examine or have examined to analyze the performance of Ad Exchanges when Dynamic Allocation is enabled;
 - b. Detail the types and sources of information You use or have used in determining the rank of an Ad Exchange when Dynamic Allocation is enabled;
 - c. Explain how You evaluated the highest estimated CPM price of an Ad Exchange when Dynamic Allocation was enabled, and Identify what data, if any, You relied upon;
 - d. Explain how AdX used Dynamic Allocation to offer more for an Ad Impression than the estimated CPM price of a different Ad Exchange; and
 - e. Identify the sources of historical data used by You to estimate the CPM price to assign to an Ad Exchange.
50. Explain how non-AdX Ad Exchanges could bid against AdX in real-time when Dynamic Allocation was enabled.
51. Explain how non-AdX Ad Exchanges can submit a bid after AdX has completed AdX's real time auction when Dynamic Allocation was enabled.
52. Explain how AdX selects the winner of the AdX Ad Auction when Dynamic Allocation was enabled.
53. Explain how AdX could set floor prices for bids when it conducted an Ad Auction with Dynamic Allocation enabled.
54. Identify the types and sources of information related to other Ad Exchanges, including the estimated CPM price of those exchanges, that AdX had access to prior to running AdX's real time auction.

55. Explain how a non-AdX Ad Exchange that did not participate in Your DFP could participate in Real Time Bidding prior to the advent of Header Bidding.
56. Explain Your business justification for causing AdX, AdSense, AdMob, and DFP work together, interact, interoperate, or integrate when Dynamic Allocation is enabled.

Enhanced Dynamic Allocation

57. Explain how EDA is different from Dynamic Allocation.
58. Explain how a Publisher's Premium Inventory and Direct Sales are affected when EDA is enabled.
59. Explain how a Publisher with guaranteed Ad Inventory competes with AdX when EDA is enabled.

Header Bidding

60. Explain how AdX utilized the CPM price estimate after Header Bidding was introduced and Identify any changes in how AdX estimated the CPM price after the introduction of Header Bidding.
61. Identify by type and brand any software of which You were aware of that assisted Publishers or SSPs with implementing Header Bidding.
62. Explain how Header Bidding affects the latency or load time of a webpage.
 - a. Explain how Server-Side Header Bidding affects the latency or load time of a webpage.
 - b. Explain how Client-Side Header Bidding affects the latency or load time of a webpage.
63. Explain how a Publisher's decision to limit the number of demand sources that are integrated into a header auction affect webpage latency or webpage load times.
64. Explain how Header Bidding can be implemented asynchronously to reduce latency or load time of a webpage.

Exchange Bidding

65. Explain how Publishers connect third-party exchanges to AdX through DFP using Exchange Bidding.
66. Explain Your business or technological rationale for hosting the Unified Auction as a First-Price Auction as opposed to a Second-Price Auction when Exchange Bidding is enabled.
67. Explain how enabling the Exchange Bidding feature on the Google Display Network affects the Unified Auction hosted by the DFP.
68. Explain how Exchange Bidding operates differently, if at all, for Ad Exchanges that have integrated with AdX through a server-to-server connection versus Ad Exchanges that have not integrated with AdX through a server-to-server connection.
69. Identify the sources and types of any information that DFP sends to AdX during or before the Exchange Bidding process, which is not simultaneously available to other Ad Exchanges.

70. Identify the sources and types of information that You rely on in submitting a bid when Exchange Bidding is enabled.
71. Identify any fees charged to competing Ad Exchanges to participate in Exchange Bidding.

Mobile Targeting

72. Explain how Android Advertising ID tracks individual users across different applications on Android.
73. Identify any SDKs utilized by any Google application on Android and explain the types and categories of user data they collect from each user of any Google owned application.
74. Explain Your business justification for using a login function to collect user behavioral data across devices.
75. Identify each of Your competitors that has successfully collected and monetized user data across devices using a login function.
76. Identify the top fifty independent application developers that use AdMob.
77. Identify the percentage of revenue from mobile ads that goes to a mobile application developer who uses AdMob.
78. Identify the percentage of revenue that You keep from revenue from mobile ads on applications developed by independent application developers that use AdMob.

Accelerated Mobile Pages

79. Explain Your relation to, control or influence over, or participation in the AMP Project, including the identity of any individual currently or previously employed or retained by You who possesses or has possessed decision-making authority relating to the AMP Project, and the nature of their authority.
80. Explain each materially different iteration of the governance of or final decision-making authority within the AMP Project (for instance, by a steering committee versus by technical lead).
81. Explain the criteria by which participants in the governance of the AMP Project are or have been selected.
82. Identify any companies or individuals You are aware of who have expressed a desire to participate in the governance of the AMP Project but who have been denied.
83. State the amount and type of resources (for instance, money, employee time, equipment, or facilities), by year, that You have expended in relation to the AMP Project.
84. State and explain the financial impact – both direct and indirect – to You arising from the AMP Project.
85. Identify any technologies, solutions, or projects that You considered as a potential alternative to the AMP Project.

86. State Your reasons or motivations for Your participation in the AMP Project, including any of Your plans to profit directly or indirectly from the AMP Project.
87. State Your reasons for requiring that (or acquiescing to a requirement that) AMP Pages be served from a cache via google.com or ampproject.org.
88. State the direct and indirect benefits and costs to You of implementing a requirement that AMP Pages be served from a cache via google.com or ampproject.org (as opposed to a third-party server, such as a Publisher's server).
89. List the types of Behavioral Data which You have collected or can collect when a user views an AMP Page.
90. List the types of Behavioral Data which third-party website owners have collected or can collect when a user views an AMP Page.
91. List the types of Behavioral Data which You have collected or can collect when a user views a non-AMP Page.
92. List the types of Behavioral Data which third-party website owners have collected or can collect when a user views a non-AMP Page.
93. How does the introduction or use of AMP Pages impact the Cookie-Matching process?
94. What benefits do You perceive as able to accrue to You when a user views an AMP Page instead of its non-AMP Page counterpart?
95. What pro-competitive benefits or efficiencies do You contend have accrued from or will accrue from the AMP Project?
96. How does a webpage's status as an AMP Page versus a non-AMP Page impact that webpage's placement and order in Your search engine results page, including placement and order within Your Carousels?
 - a. What factors have You considered in determining whether, or the extent to which, a webpage's status as an AMP Page versus a non-AMP Page impacts that webpage's placement and order in Your search engine results page?
 - b. What factors have You considered in determining whether, or the extent to which, a webpage's status as an AMP Page versus a non-AMP Page impacts that webpage's placement and order within Your Carousels?
97. To what extent are third-party analytics vendors such as Adobe Analytics or comScore permitted or given access to Behavioral Data which You collect or maintain and which results from an AMP Page being served from a cache via google.com or ampproject.org (as opposed to from a third-party server such as a Publisher's server)?
98. Identify the criteria that You use to determine whether a third-party analytics vendor such as Adobe Analytics or comScore will be permitted or given access to Behavioral Data which You collect or maintain and which results from an AMP Page being served from a cache via google.com or ampproject.org (as opposed to from a third-party server such as a Publisher's server).

99. Explain Your relation to, control or influence over, or association with Prebid and prebid.org.
100. How has the AMP Project affected internet traffic to Publishers who offer their own targeted advertising services to Advertisers?
101. Explain how a Publisher, SSP, or competing Ad Exchange can utilize Header Bidding to serve ads on an AMP Page.

Chrome

102. List the types of Behavioral Data which You have collected or can collect when a user views a website on Chrome.
103. List the types of Behavioral Data which third-party Publishers have collected or can collect when a user views the Publisher's website on Chrome.
104. List the types of Behavioral Data which third-party Data Management Platforms have collected or can collect when a user views a website on Chrome.
105. Do You now or do You have plans to restrict cross-site tracking or Cookie-Matching on Chrome? If so, explain those plans in detail.

Privacy Policy

106. Explain Your business rationale for any change to Your DFP Ad Privacy Policy in 2016 notifying users of Your ability to combine their browsing data with personally identifiable information.

YouTube

107. Explain Your business justification for removing YouTube inventory from other Ad Exchanges.
108. Identify all of the Ad Exchanges that an Advertiser could utilize to advertise on YouTube in 2014.
109. Identify all of the Ad Exchanges that an Advertiser could utilize to advertise on YouTube in 2016.
110. Identify all platforms that Advertisers can use to buy ads on YouTube.

Competition

111. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to AdX.
112. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to AdMeld.
113. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to Ad Mob.
114. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to DFP.
115. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to DBM.

116. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to Google Audience Center.
117. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to DoubleClick Campaign Manager.
118. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to AdSense.
119. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to GDN.
120. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each third-party Ad Exchange or SSP that competes with AdX.
121. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to Chrome.
122. State the name, business address, estimated revenue (if applicable), and estimated market shares, of each of Your competitors with respect to YouTube.

General

123. Identify the top fifty Advertisers that purchase Ad Inventory in the Display Advertising Market through one or more of Your products in terms of annual dollar amounts paid for Ad Inventory, during the Extended Time Period.
124. Identify the top fifty Publishers that sell Ad Inventory in the Display Advertising Market through one or more of Your products in terms of annual revenue received from Ad Inventory sold, during the Extended Time Period. For any contract produced in response to any Request for Documents, Identify those which have provisions that relate to exclusive dealing, exclusionary periods, or restrictions on contracting with any competitors of You, or which restrict any counterparty from entering or operating in a particular product market in which You are also a market participant.
125. Identify any service or third-party service providers You use to observe, measure, or track Publisher traffic to or through Your products in both the Ad Intermediation Market the Ad Serving Market for Advertisers, and the Ad Serving Market for Publishers including but not limited to, AdX, AdMeld, Ad Mob, DFP, DBM, DCM, AdSense, and GDN.
126. For each of the following terms and phrases, list all abbreviations or other alternate or shorthand terms or phrases which You use or have used to mean the same thing:

“AMP Page”, “AMP Project”, “Ad Auction”, “Ad Exchange”, “Ad Impression”, “Ad Intermediation Market”, “Ad Inventory”, “Ad Network”, “Ad Serving Market for Advertisers”, “Ad Serving Market for Publishers”, “AdMeld”, “AdMob”, “AdSense”, “Advertiser”, “Advertiser Ad Server”, “AdWords Customer Match”, “Behavioral Data”, “First-Party Data”, “Second-Party Data”, “Third-Party Data”, “Carousel”, “Cookie-Matching”, “Cost-Per-Click”, “Cost-Per-Mille”, “Client-Side Header Bidding”, “Data Management Platform”, “Demand Side Platform”, “DoubleClick Bid Manager”, “Direct Sales”, “Display Advertising Market”, “DoubleClick Campaign Manager”, “DoubleClick for Publishers”, “DFP Ad Privacy Policy”, “Dynamic

Allocation”, “Enhanced Dynamic Allocation”, “Exchange Bidding”, “First-Price Auction”, “First-Party Cookies”, “AdX Floor Pricing”, “Google Ad Manager”, “Google Ad Exchange”, “AdWords”, “Google Analytics”, “Google Audience Center”, “Google Cookie Matching”, “Google Display Network”, “Google Display & Video 360”, “Google Marketing Platform”, “Header Bidding”, “Intermediated Sales”, “Non-Premium Inventory”, “Pre-Auction Bidding”, “Premium Inventory”, “Programmatic Advertising”, “Publisher”, “Publisher Ad Servers”, “Real-Time Auction”, “Real-Time Bidding”, “Remnant Inventory”, “Search Advertising Market”, “Second-Price-Auction”, “Server-Side Header Bidding”, “Software Development Kit”, “Supply Side Platforms”, “Third-Party Cookies”, “Unified Auction”, “Waterfall”.

127. Identify each Person involved in answering any part of these interrogatories or gathering Documents or Communications responsive to these document requests, indicating which interrogatory each person answered and which document requests the person was involved in gathering.
128. For each of the foregoing Interrogatories, Identify the Persons currently or previously employed or retained by You, with principle knowledge, decision-making or management authority, or expertise related to the subject matter of the Interrogatory. For each Person so identified, Identify by type and format, the number of Documents under that Person’s custody or control that relate to the subject matter of the Interrogatory.
129. For each of the following Document requests for which responsive Documents are produced, Identify the bates range of Documents produced that correspond to each Document request.

REQUESTS FOR DOCUMENTS

Acquisitions

1. Produce planning documents, white papers, market analyses, competitive analyses, merger retrospectives, strategic plans or other decision-making and analytical Documents that relate to Your acquisition of DoubleClick. The time period applicable to this Request is the DoubleClick Merger Period.
2. Produce planning documents, white papers, market analyses, competitive analyses, merger retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your acquisition of AdMob. The time period applicable to this Request is the AdMob Merger Period.
3. Produce planning documents, white papers, market analyses, competitive analyses, merger retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your acquisition of AdMeld. The time period applicable to this Request is the AdMeld Merger Period.
4. Produce planning documents, white papers, market analyses, competitive analyses, merger retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your acquisition of Invite Media. The time period applicable to this Request is the Invite Media Merger Period.

Integrations

5. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your integration of AdMob and Invite Media into AdX. The time period applicable to this Request is the Extended Time Period.
6. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your integration of DFP and AdX into Google Ad Manager. The time period applicable to this Request is the Extended Time Period.
7. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your unification of Google Analytics and DoubleClick into Google Marketing Platform. The time period applicable to this Request is the Extended Time Period.
8. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your integration of DV360 into Google Marketing Platform. The time period applicable to this Request is the Extended Time Period.

Google Display Network

9. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to use AdSense to limit AdWords and AdX buyers to purchasing only from Google Certified Ad Networks. The time period applicable to this Request is the Extended Time Period.

10. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to require AdX sellers to purchase Ad Inventory through AdX in order to interact with buyers from sales platforms other than AdX Seller. The time period applicable to this Request is the Extended Time Period.

Google Display & Video 360

11. Produce Documents, including any documents detailing any discounts, bundled or otherwise, sufficient to show the pricing structure for DV360.

AdWords & AdSense Auctions

12. Produce Documents that relate to any complaint by any T-50 Publisher or T-50 Advertiser, regarding the method by which AdWords selects a winning bid at an AdWords Ad Auction. The time period applicable to this Request is the Extended Time Period.
13. Produce Documents that relate to any complaint by any T-50 Publisher or T-50 Advertiser, regarding any efforts by You to optimize the AdWords Ad Auction. The time period applicable to this Request is the Extended Time Period. The time period applicable to this Request is the Extended Time Period.
14. Produce Documents that relate to any complaint by any T-50 Publisher or T-50 Advertiser regarding Your use of Smart Pricing in Ad Sense Ad Auctions. The time period applicable to this Request is the Extended Time Period.

DoubleClick for Publishers

15. Produce Documents that relate to any complaint received by You from any T-50 Publisher regarding DFP filling Ad Inventory that was a directly sold by the Publisher. The time period applicable to this Request is the Extended Time Period.
16. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to offer DFP Small Business to Publishers for free. The time period applicable to this Request is the Extended Time Period.
17. Produce Documents analyzing, discussing, or forecasting how You monetize or intend to monetize DFP Small Business.
18. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to charge Publishers for access to DFP Premium. The time period applicable to this Request is the Extended Time Period.
19. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to not include impressions sold through AdSense in DFP Premium pricing. The time period applicable to this Request is the Extended Time Period.
20. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to

not include impressions sold through AdX Seller in DFP Premium pricing. The time period applicable to this Request is the Extended Time Period.

Google Ad Exchange

21. Produce Documents that relate to any complaint made by any Ad Exchange or SSP regarding how they interact with AdX in order to submit a bid for an Ad Impression. The time period applicable to this Request is the Extended Time Period.
22. Produce Documents that relate to any complaint made by any DSP or Ad Network regarding competition within AdX. The time period applicable to this Request is the Extended Time Period.
23. Produce Documents that relate to any complaint made by any Ad Exchange or SSP, regarding how AdX is optimized by You, including the reliability of any experiments conducted by AdX in order to optimize a AdX Auction. The time period applicable to this Request is the Extended Time Period.
24. Produce Documents that relate to any complaint made by any Ad Exchange or SSP regarding Your closing of an AdX Auction at a price lower than the reserve price. The time period applicable to this Request is the Extended Time Period.
25. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to impose a mandatory minimum ad spend for AdX.
26. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to only consider ad spend that is purchased through DBM to satisfy the mandatory minimum requirements for AdX.

Data Management Platforms

27. Produce Documents that relate to any complaint received by You from any DMP that You permitted to connect to, interoperate with, or integrate with DBM regarding problems connecting to, interoperating with, or integrating with DBM or Google Audience Center.
28. Produce Documents that relate to any complaint received by You from any DMP that You denied a request to connect to, interoperate with, or integrate with DBM or Google Audience Center.
29. Produce Documents which relate to how Your policy of prohibiting standalone DMPs from using tracking pixels on GDN affects their business, including their ability to retarget users on Ad Networks not owned by Google and their ability to target users across channels.

Retargeting

30. Produce Documents that relate to any complaint by any T-50 Advertiser regarding the use of last-click attribution or last-impression attribution by Google Analytics as a means to measure the effectiveness of any ad campaign, ad channel, or advertising strategy.

Dynamic Allocation

31. Produce Documents that relate to any complaint received by You from any Ad Exchange or any T-50 Publisher regarding how Dynamic Allocation estimated the CPM price of an Ad Exchange.

32. Produce Documents that relate to any complaint received by You from any Ad Exchange regarding AdX Floor Pricing when Dynamic Allocation was enabled.
33. Produce Documents that relate to any complaint received by You from any Ad Exchange complaining about an inability to win bids for Ad Inventory when Dynamic Allocation was enabled.
34. Produce Documents that relate to any complaint received by You from any Ad Exchange or any T-50 Publisher regarding how Dynamic Allocation ranked an Ad Exchange.
35. Produce Documents sufficient to show how AdX, AdSense, AdMob, and DFP work together, interact, interoperate, or integrate when Dynamic Allocation is enabled.

Enhanced Dynamic Allocation

36. Produce Documents that relate to any complaints by any T-50 Publisher regarding EDA.
37. Produce Document that relate to any request by any T-50 Publisher to stop participating in EDA or to return to Dynamic Allocation as it was before the implementation of EDA.
38. Produce Documents that relate to any decision by any T-50 Publisher to stop using DFP because of EDA.

Header Bidding

39. Produce Documents that relate to any changes to any of Your products, any introduction of new products by You, or any effect on Your businesses as a result of Header Bidding.
40. Produce Documents that relate to the impact of Header Bidding on Publishers' ad revenue.
41. Produce Documents that relate to webpage latency resulting from Header Bidding.
 - a. Produce Documents that relate to the effect of Server-Side Header Bidding on webpage latency or webpage load times.
 - b. Produce Documents that relate to the effect of Client-Side Header Bidding on webpage latency or webpage load times.
42. Produce Documents that relate to the effect asynchronous implementation of header bidding has on webpage latency or webpage load times.
43. Produce Documents that relate to how a Publisher's decision to limit the number of demand sources that are integrated into a header auction affect webpage latency or webpage load times.
44. Produce all latency studies done by You or in Your possession with respect to Header Bidding.
45. Produce all Documents relating to any study responsive to the preceding request.
46. Produce all abandonment studies done by You or in Your possession with respect to Header Bidding.
47. Produce all Documents relating to any study responsive to the preceding request.
48. Produce all effectiveness studies done by You or in Your possession with respect to Header Bidding.

49. Produce all Documents relating to any study responsive to the preceding request.

Exchange Bidding

50. Produce Documents that relate to any complaint by any T-50 Publisher regarding the Exchange Bidding process.
51. Produce Documents that relate to any instance in which any T-50 Advertiser or any Ad Exchange complained that they wanted to or intended to bid on any Ad Impression, but was unable to do so based on how an Ad Exchange was ranked in DFP with Exchange Bidding enabled.
52. Produce Documents that relate to any complaint made by any Ad Exchange related to integrating with AdX through a server-to-server connection.
53. Produce Documents that relate to the impact of Exchange Bidding on other Ad Exchanges.
54. Produce Documents that relate to the impact that Exchange Bidding had on Publishers' ad revenue.
55. Produce Documents that relate to the impact that Exchange Bidding had on Advertisers' ad spend.
56. Produce Documents sufficient to demonstrate any fee structure for fees charged to third-party exchanges for the opportunity to participate in Exchange Bidding.

Mobile Targeting

57. Produce Documents that identify Your scale, market share, or product diversity as source of Your ability to collect and monetize data across multiple devices and technologies, or that otherwise compare Your ability to collect and monetize data across multiple devices and technologies with that of any competitor.
58. Produce Documents that relate to any complaint by any T-50 Publisher regarding AdMob SDK filling Ad Inventory that was a directly sold by the Publisher.
59. Produce planning documents, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making and analytical Documents that relate to Your decision to use a login function to collect user behavioral data across devices.

Accelerated Mobile Pages

60. Produce Documents sufficient to show Your relation to, control or influence over, or participation in the AMP Project, including Documents sufficient to identify any individual currently or previously employed or retained by You who possesses or has possessed decision-making authority relating to the AMP Project, and the nature of their authority.
61. Produce Documents sufficient to illustrate each materially different iteration of the governance of or final decision-making authority within the AMP Project (for instance, by a steering committee versus by technical lead).
62. Produce Documents sufficient to show the criteria by which participants in the governance of the AMP Project are or have been selected.
63. Produce Documents sufficient to identify all persons who have expressed a desire to participate in the governance of the AMP Project.

64. Produce Documents sufficient to show the amount and type of resources (for instance, money, employee time, equipment, or facilities) You have expended in relation to the AMP Project.
65. Produce Documents sufficient to show the pros and cons of any technology, solution, or project You considered as a potential alternative to the AMP Project.
66. Produce Documents that relate to Your reasons or motivations for Your participation in the AMP Project, including Your plans to profit directly or indirectly from the AMP Project.
67. Produce Documents that relate to any reason You have or have had for requiring that (or acquiescing to a requirement that) AMP pages be served from a cache via google.com or ampproject.org.
68. Produce Documents that relate to any direct and indirect benefits or costs to You of implementing a requirement that AMP Pages be served from a cache via google.com or ampproject.org (as opposed to a third-party server, such as a Publisher's server).
69. Produce Documents sufficient to show the types of Behavioral Data which You have collected or can collect when a user views an AMP Page.
70. Produce Documents sufficient to show the types of Behavioral Data which third-party website owners have collected or can collect when a user views an AMP Page.
71. Produce Documents sufficient to show the types of Behavioral Data which You have collected or can collect when a user views a non-AMP Page.
72. Produce Documents sufficient to show the types of Behavioral Data which third-party website owners have collected or can collect when a user views a non-AMP Page.
73. Produce Documents sufficient to show how the introduction or use of AMP Pages impacts the Cookie-Matching process.
74. Produce Documents that relate to any benefit You perceive as able to accrue to You when a user views an AMP Page instead of its non-AMP Page counterpart.
75. Produce all Documents relating to Your consideration or analysis of whether (or the extent to which) non-AMP Pages should be included in Your Carousels.
76. Produce Documents that relate to how a webpage's status as an AMP Page versus a non-AMP Page can impact that webpage's placement in Your search engine results page.
77. Produce Documents relating to Your analysis or consideration of whether, or the extent to which, a webpage's status as an AMP Page versus a non-AMP Page should impact that webpage's placement in Your search engine results page.
78. Produce Documents that relate to the direct or indirect financial impact to You arising from the AMP Project.
79. Produce Documents that relate to any of Your predictions or analysis of future direct or indirect financial impact to You arising from the AMP Project.
80. Produce all Documents that relate to any criticisms that the AMP Project harms competition or Publishers, including but not limited to Documents that relate to the correspondence published at ampletter.org.

81. Produce Documents sufficient to show the extent to which any third-party analytics vendor is permitted or given access to Behavioral Data with respect to AMP Pages.
82. Produce Documents sufficient to show the criteria by which it is determined whether a third-party analytics vendor such as Adobe Analytics or comScore is permitted or given access to Behavioral Data which You collect or maintain and which results from an AMP Page being served from a cache via google.com or ampproject.org (as opposed to from a third-party server such as a Publisher's server).
83. Produce Documents sufficient to show Your relation to, control or influence over, or association with Prebid and prebid.org.
84. Produce all latency studies done by You or in Your possession with respect to the AMP Project or AMP Pages.
85. Produce all Documents relating to any study responsive to the preceding request.
86. Produce all abandonment studies done by You or in Your possession with respect to the AMP Project or AMP Pages.
87. Produce all Documents relating to any study responsive to the preceding request.
88. Produce all effectiveness studies done by You or in Your possession with respect to the AMP Project or AMP Pages.
89. Produce all Documents relating to any study responsive to the preceding request.
90. Produce Documents that relate to how the AMP Project will affect or has affected internet traffic to Publishers who offer their own targeted advertising services to Advertisers.

Chrome

91. Produce planning documents, white papers, market analyses, competitive analyses, merger retrospectives, strategic plans, or other decision-making and analytical Documents concerning the ability of third-parties to implement cross-site tracking or Cookie-Matching on Chrome.
92. Produce Documents that relate to any complaints from Publishers or Data Management Platforms regarding the ability of third-parties to implement cross-site tracking or Cookie-Matching on Chrome.

Privacy Policy

93. Produce planning documents, white papers, market analyses, competitive analyses, merger retrospectives, market studies, forecasts and surveys, strategic plans, and other decision-making and analytical Documents regarding changes You made to Your DFP Ad Privacy policy in 2016.
94. Produce Documents that relate to any complaints from any T-50 Publisher, or from any Data Management Platform, Ad Exchange, SSP, or DSP, regarding changes You made to Your DFP Ad Privacy Policy in 2016.

YouTube

95. Produce Documents that relate to any complaints from any T-50 Advertiser or T-50 Publisher, of from any DSPs or Ad Exchanges, regarding Your decision to remove YouTube Ad Inventory from other Ad Exchanges.

Competition

96. Produce planning documents, white papers, market analyses, competitive analyses, merger retrospectives, market studies, forecasts and surveys, strategic plans, and other decision-making and analytical Documents related to the sales, market share, or competitive position of You or Your products or competitors and their products. For the purpose of this interrogatory, “competitor” shall mean any competitor identified in response to interrogatories 104-115. The time period applicable to this Request is the Extended Time Period.

Financial Documents

97. Produce Documents sufficient to show Your share of Programmatic Advertising revenue (i.e. the total amount paid by Advertisers in respect of ads using your services) in comparison to the portion of Programmatic Advertising revenue received by Publishers for the Extended Time Period.
98. Produce Documents sufficient to show the fee structure paid by Advertisers on each of Your products in the Ad Intermediation Market and the Ad Serving Market for Advertisers throughout the Extended Time Period.
99. Produce Documents sufficient to show the fee structure paid by Publishers on each of Your products in the Ad Intermediation Market and the Ad Serving Market for Advertisers throughout the Extended Time Period.
100. Produce Documents sufficient to show the fee structure paid by Advertisers on each of Your products in the Ad Intermediation Market and the Ad Serving Market for Publishers throughout the Extended Time Period.
101. Produce Documents sufficient to show the fee structure paid by Publishers on each of Your products in the Ad Intermediation Market and the Ad Serving Market for Publishers throughout the Extended Time Period.
102. Produce Documents that relate to the historical bid data and pricing data of competing Ad Exchanges that is retained by DFP throughout the Extended Time Period.
103. Produce Documents that relate to how You use historical bid data and pricing data to calculate how much You will bid for Ad Inventory during the Extended Time Period.
104. Produce any contracts that You have entered into with any T-50 Publisher or T-50 Advertiser during the Extended Time Period.

EXHIBIT A

CERTIFICATE

STATE OF _____

COUNTY OF _____

_____, being duly sworn upon his/her oath states:

I am a representative of Alphabet Inc. and have knowledge of the facts and circumstances relating to the preparation of the answers to the interrogatories in this civil investigative demand. All of the requested information in the possession, custody, control, or knowledge of Alphabet Inc. has been set forth fully and accurately in the answers to interrogatories. I have knowledge of the facts and circumstances relating to the production of material in response to the requests for documents in this civil investigative demand. All of the requested material in the possession, custody, or control of Alphabet Inc. has been produced.

Title: _____

SUBSCRIBED and SWORN TO BEFORE ME this _____ day of _____, 2019.

NOTARY PUBLIC IN AND FOR THE
STATE OF _____

EXHIBIT B**Specifications for Electronic Document Production**

Texas Office of the Attorney General

Specifications for Relativity Load File Production

Electronic Discovery Unit



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Purpose:

This document provides the specifications and procedures involved in producing an image-based production to the State of Texas Office of the Attorney General using Relativity style load files. The guidelines discussed here may be applied to productions of electronically stored information (ESI) or scanned hard copy paper documents with optical character recognition (OCR) text.

Any party in receipt of a subpoena or request for production (RFP) of documents from the Texas Office of the Attorney General should follow the guidelines in this specification when submitting productions. Failure to adhere to the form of production laid out below may result in rejection of the production and rework at the cost of the producing party.

Production Components:

The following components are expected in each production volume.

1. Production Cover Letter
2. Metadata DAT Load File
3. Opticon Image Load File
4. Single Page TIFF Images
5. Document Level Text/OCR Files
6. Native Files (as necessary)



Production Cover Letter

The production cover letter is designed to summarize each production volume submitted to the OAG by the producing party. Using Excel, the producing party should provide the following information for each production:

- Volume Name
- Custodian(s)
- Begin Bates Number
- End Bates Number
- Number of Records
- Number of Pages/Images
- Number of Native Files
- Date Produced

Example of Production Cover Letter content:

Volume Name	Custodian	Begin Bates Nbr	End Bates Nbr	Intentionally Left Blank	Nbr of Records	Nbr of Images	Nbr of Native Files	Date Produced
ABC001	Smith, John	ABC-00000001	ABC-00001234		24	1234	0	4/30/2013
ABC002	Doe, Jane	ABC-00001235	ABC-00123456		8429	122222	42	6/25/2013



Relativity Load Files

Two load files are required with each production volume – metadata DAT and Opticon image load files. These load files should be encoded in ANSI or ISO-8859-1. If your production will include a foreign language which requires Unicode (i.e. UTF-8) to support multi-byte characters, please discuss this with the OAG prior to submitting a production.

Opticon (OPT) Image Load File:

The OPT file is a comma separated file which will contain one line for each page in the production volume. An example is provided below:

```
ABC-00000001,ABC001,IMAGES\001\ABC-00000001.TIF,Y,,,3 ABC-
00000002,ABC001,IMAGES\001\ABC-00000002.TIF,,,, ABC-
00000003,ABC001,IMAGES\001\ABC-00000003.TIF,,,, ABC-
00000004,ABC001,IMAGES\001\ABC-00000004.TIF,Y,,,1
```

In the example above, each comma separates a field of information. The first field is the page number or Bates number of the page in the production. The second field contains the value which corresponds to the production volume¹. The third field contains the relative path² to the TIF image file for that page. The fourth field contains a value of “Y” if the line represents the first page of a document; otherwise the field is left blank as in lines 2 and 3 in the example above. The fifth and sixth fields are not used and should be left blank. The seventh and final field contains the page count for the document and is only populated for the first page.

Metadata (DAT) Load File:

The DAT file is nothing more than a text file which uses a standard set of delimiters to separate fields of values. The standard Relativity delimiters for the metadata DAT file are:

Delimiter Type	Character	Description	ASCII Code
Text Qualifier	þ	Small Letter Thorn	254
Field Separator		DC4	20
Multi-Value	;	Semi Colon	59
Newline	®	Registered Sign	174

The first line of the DAT file must contain a header row which identifies the field³ names.

Additional Considerations:

- All date fields must be formatted as: mm/dd/yyyy
- All attachments must sequentially follow the parent email/document
- Extracted or OCR text should NOT be included in the DAT file

¹ The production volume is typically comprised of a short 3 or 4 character prefix and starts at volume 1 or “001”. This allows for a possible 999 production volumes in the case. Four digit volume numbers may be used for very large cases with extensive rolling productions.

² The ‘relative path’ is defined as the path starting from the production volume folder.

³ Metadata field requirements and recommendations are included in Appendix A.



Single Page TIFF Images

TIFF images will be provided in the "IMAGES" folder of the production volume. All images must be single-page, black and white, Group IV TIFF files, with a resolution of 300 dpi. Each TIFF image file will be named for the corresponding Bates page number (i.e. ABC-00000001.tif). File names should avoid using embedded spaces whenever possible. A hyphen/minus (-) or Low Line (_) may be used to separate the Bates prefix from the number.

Additional Considerations:

- Bates numbers should be endorsed on the lower right corner of all images using a clear font typeface such as Arial 12 pt.
- When a production will include more than 2000 images/pages, sub-folders should be organized within the "IMAGES" directory such that no one folder contains more than 2,000 files⁴.
- When a file is to be produced natively (i.e. Microsoft Excel, audio/video files) a placeholder TIFF image should be included to represent the native file⁵.

Document Level Text/OCR Files

A text file which contains the searchable text content of each document must be provided in the "TEXT" folder of the production volume. All text files must be document level (i.e. contains all pages of each document) and each text file must be named for the beginning Bates number of that document.

When a document originates in electronic format, extracted text should be provided unless the item contains no embedded text (i.e. an image only PDF file).

If the document contains no embedded text or if the origin is hard copy paper, optical character recognition should be performed on the item to create an OCR text file. Likewise, items requiring redaction should be OCR'd in order to provide full text for un-redacted content.

Additional Considerations:

- Text files should be encoded using an ASCII character set. Do not submit Unicode text files unless your data contains a foreign language and you have first discussed with the OAG.
- Full text should NEVER be included in the metadata DAT load file
- Natively produced items must also have a corresponding extracted text file in the TEXT folder. If the item is an audio or video file, a blank text file (0 byte) should be provided.
- When a production will include more than 2,000 items, sub-folders should be organized within the "TEXT" directory such that no one folder contains more than 2,000 files.

⁴ An example of the production volume folder structure is provided in Appendix B

⁵ See Appendix C for an example of a native placeholder image



Natively Produced Items

The content of certain file types is not conducive to production in image format. Electronic data such as audio or video files, spreadsheets (such as Microsoft Excel), or databases (such as Microsoft Access) do not convert to TIFF images in a usable manner. As such, it may be necessary to produce these items in native format.

When a file is produced in native format, it will receive a single Bates number which represents the content of the entire file. The native file is given the Bates number as the file name along with the respective file extension (i.e. ".xlsx" or ".wav"). Additionally, a single TIFF image which indicated that the file have been produced natively should be included in the "IMAGES" folder. The placeholder image is branded with the corresponding Bates number and the image file is also given the Bates number as the file name followed by the ".tif" file extension.

Additional Considerations:

- All items produced natively should be located within the "NATIVES" folder of the production volume.⁶
- No one folder should contain more than 2,000 items, therefore sub-folders should be used within the "NATIVES" folder when there will be more than 2,000 native files produced.
- Production volumes which include natively produced items should also include a field in the Metadata DAT file named 'NATIVEPATH'. This field is to be populated with the relative path to the native file within the production volume.

Example NATIVEPATH value:

`\NATIVES\001\ABC-00000001.xlsx`

⁶ An example of the production volume folder structure is provided in Appendix B



Appendix A – Metadata Reference

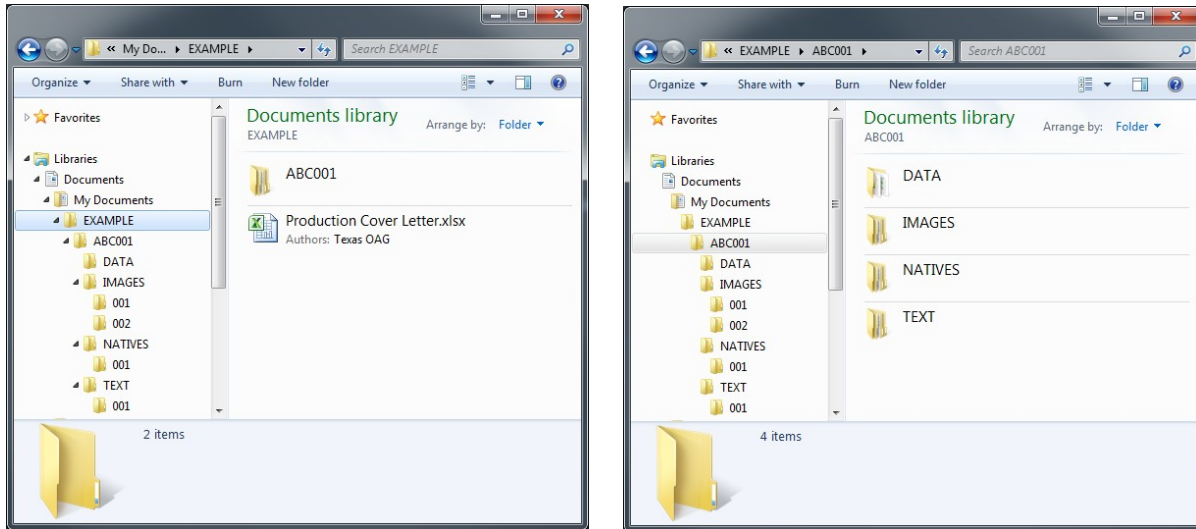
Metadata Field Name:	Description:	Email	Attached	Loose	Paper
BEGBATES	Beginning Bates number	X	X	X	X
ENDBATES	Ending Bates number	X	X	X	X
BEGATTACH	Beginning Attachment number	X	X	X	X
ENDATTACH	Ending Attachment number	X	X	X	X
PAGECOUNT	Number of pages	X	X	X	X
DOCTYPE	Example values: Email, Attachment, File, Hard	X	X	X	X
CUSTODIAN	Populated with Lastname, Firstname of the	X	X	X	X
SUBJECT	The subject value from the email message	X			
FROM	The sender of the email message	X			
TO	The “TO” recipients of the email message	X			
CC	The carbon copied recipients of the email message	X			
BCC	The blind carbon copied recipients of the email	X			
DATESENT	The date the email message was sent formatted as	X			
TIMESENT	The time the email message was sent formatted as	X			
DATERECEIVED	The date the email message was received	X			
TIMERECEIVED	The time the email message was received	X			
FILENAME	The file name of the item including the file		X	X	X
FILE_EXTENSIO	The file extension of the item (without the “.” dot)		X	X	X
FILE_SIZE	An integer - the size of the item in bytes	X	X	X	X
TITLE	The Title of the item from Windows properties		X	X	X
AUTHOR	The Author of the item from Windows properties		X	X	X
APPLICATION	The Program name of the item from Windows	X	X	X	X
CREATEDATE	The date the item was created formatted as		X	X	X
CREATETIME	The time the item was created formatted as		X	X	X
LASTMODDATE	The date the item was last modified formatted as		X	X	X
LASTMODTIME	The time the item was last modified formatted as		X	X	X
NUMATTACH	An integer, the number of attached items (“0” if no	X	X	X	X
NATIVEPATH	The relative path to the native file within the				
TEXTPATH	The relative path to the extracted/OCR text file	X	X	X	X

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Appendix B – Example Production Volume Folder Structure

The images below provide the expected folder structure for a production volume named ABC001.



In the example, the Production Cover Letter is stored at the same level as the production volume folder. Within the production volume folder, the following sub-folders are present:

- DATA
- IMAGES
 - o 001
 - o 002
- NATIVES
 - o 001
- TEXT
 - o 001

The “DATA” folder is used to store the Metadata DAT and Opticon Image load files.

The “IMAGES” folder will contain the single page TIFF images. Productions with more than 2,000 images will have sub-folders in the “IMAGES” folder for each set of 2,000 images. The sub-folders will iterate up from “001” or “0001” until enough folders are present to store each set of 2,000 images.

The “NATIVES” folder will contain any files which have been produced in native format. Productions with more than 2,000 natives will have sub-folders in the “NATIVES” folder for each set of 2,000 native files. The sub-folders will iterate up from “001” or “0001” until enough folders are present to store each set of 2,000 native files.

The “TEXT” folder will contain the document level extracted text or OCR text files. Productions with more than 2,000 records will have sub-folders in the “TEXT” folder for each set of 2,000 text files. The sub-folders will iterate up from “001” or “0001” until enough folders are present to store each set of 2,000 text files.



Appendix C— Example Native Placeholder

This file has been produced in native format.

Fall Earnings Report.xlsx

ABC-00000001

EXHIBIT B



KEN PAXTON

ATTORNEY GENERAL OF TEXAS

CIVIL INVESTIGATIVE DEMAND

To: Alphabet Inc.
c/o Paul Yetter
811 Main Street
Suite 4100
Houston, TX 77002
713.632.8000
pyetter@yettercoleman.com

The Office of the Attorney General of Texas ("OAG") is investigating anticompetitive conduct in markets relating to online advertising, online search, and mobile operating systems in Texas and the rest of the United States. Such activity may violate Section 15.05(b) of the Texas Free Enterprise and Antitrust Act of 1983, Tex. Bus. & Com. Code § 15.01 *et seq.* (the "Act").

The OAG has reason to believe that you may have information and/or material relevant to its investigation and is therefore issuing you this Civil Investigative Demand ("CID") pursuant to Section 15.10 of the Act. Please review the following instructions and definitions carefully before responding to this CID. The documents you submit must be produced under a sworn certificate in the form attached as Exhibit A. Your response should be submitted **on or before July 22, 2020** to Assistant Attorney General David M. Ashton, Antitrust Division, Texas Office of the Attorney General, 300 W. 15th Street, 7th Floor, Austin, Texas 78701 or, if delivered by mail, at P.O. Box 12548, Austin, Texas 78711.

Section 15.10(i)(5) of the Act governs OAG's treatment of documents designated as containing trade secrets or confidential information. You should clearly designate documents or portions thereof, if any, that contain trade secrets or confidential information.

NOTICE

Any person who, with intent to avoid, evade, or prevent compliance, in whole or in part, with a CID, removes from any place, conceals, withholds, destroys, mutilates, alters, or by any other means falsifies any documentary material, or otherwise provides inaccurate information, is guilty of a misdemeanor which, on conviction, is punishable by a fine of not more than \$5,000, or by confinement in county jail for not more than one year, or both. Objections to this demand may be made in accordance with Section 15.10 of the Act.

Issued on June 22, 2020.

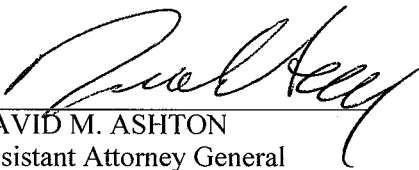
KEN PAXTON
Attorney General of Texas

JEFFREY C. MATEER
First Assistant Attorney General

RYAN BANGERT
Deputy First Assistant Attorney General

DARREN McCARTY
Deputy Attorney General for Civil Litigation

KIM VAN WINKLE
Chief, Antitrust Division

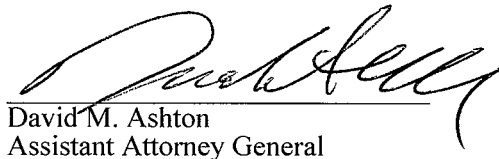


DAVID M. ASHTON
Assistant Attorney General
Antitrust Division
(512) 936-1781
(512) 320-0975 (fax)
David.Ashton@oag.texas.gov

CERTIFICATE OF SERVICE

I certify that on June 22, 2020, a true and correct copy of this Civil Investigative Demand was sent via certified mail, return receipt requested, and via electronic mail, addressed as follows:

Alphabet Inc.
c/o Paul Yetter
Yetter Coleman, LLP
811 Main Street, Suite 4100
Houston, TX 77002
713.632.8000
pyetter@yettercoleman.com



David M. Ashton
Assistant Attorney General

INSTRUCTIONS

1. Except as otherwise specified, this CID requires production of documents and information from January 1, 2014 to present day.
 - A. **This request is continuing in nature.** To the extent that Documents or information responsive to this CID are obtained or generated after the issuance of this CID, Your production and responses should be supplemented accordingly.
2. For Your response to this CID to be complete, the certification form attached as **Exhibit A** must be executed by the official supervising compliance with this CID, notarized, and submitted along with the responsive materials and information.
3. For the purposes of the request for documents, the following instructions apply:
 - A. No copying costs will be reimbursed unless a representative from the OAG has provided written approval, prior to submission, of the estimated cost of providing copies of the non-electronic documents requested in this CID. All other costs of complying with this CID will be borne by You.
 - B. If all or any portion of any responsive document is withheld for any reason, including a claim of attorney-client privilege, any other applicable privilege or immunity, or judicial order, please submit a list of the documents withheld and state individually as to each document: (1) the source of the document; (2) the name, address, position and organization of the author and recipient of the document; (3) the type, title, specific matter, length and date of the document; and (4) the reason for withholding the document, including, but not limited to, identifying the actual or anticipated litigation that underlies a claim of work product immunity.
 - C. Documents produced electronically must comply with the Specifications for Electronic Document Production attached hereto as **Exhibit B**.
 - a. In addition to the categories of documents and materials required to be produced in native form as stated in Exhibit B, You also must produce native files for any emails containing one or more hyperlinks in the body of the email (i.e., hyperlinks found in standard signature blocks do not, by themselves, require production of the email in native form).
 - D. All documents responsive to this request for documents, regardless of format or form and regardless of whether submitted in paper or electronic form:
 - a. shall be produced in complete form, unredacted unless privileged, and in the order in which they appear in Your files and shall not be shuffled or otherwise rearranged. For example:
 - i. if in their original condition papers were stapled, clipped or otherwise fastened together or maintained in file folders, binders, covers or containers, they shall be produced in such form, and any documents that must be removed from their original folders, binders, covers or containers to be produced shall be identified in a manner so as to clearly specify the folder, binder, cover or container from which such documents came; and
 - ii. if in their original condition electronic documents were maintained in folders or otherwise organized, they shall be produced in such form and information shall be produced so as to clearly specify the folder or organization format;

- b. shall be produced in color where necessary to interpret the document;
 - c. shall be marked on each page with corporate identification and consecutive document control numbers;
 - d. shall be accompanied by an index that identifies: (i) the name of each person from whom responsive documents are submitted; and (ii) the corresponding consecutive document control number(s) used to identify that person's documents, and if submitted in paper form, the box number containing such documents. If the index exists as a computer file(s), provide the index both as a printed hard copy and in machine-readable form (provided that OAG representatives determine prior to submission that the machine-readable form would be in a format that allows the agency to use the computer files).
- E. If books and records that provide accurate responses are not available, enter best estimates and describe how the estimates were derived, including the sources or bases of such estimates. Estimated data should be followed by the notation "est." If there is no reasonable way for You to make an estimate, provide an explanation.
- F. To the extent that any material responsive to a request for production is dynamic (e.g., a wiki or repository), produce in electronic format a Clone of said material, including all comments, versions, commits, revision history, and material from any associated information tracking systems, including, but not limited to, feature requests, bug reports, issues, sprints, tasks, user stories, project management, and trouble tickets.
4. If documents responsive to a particular document request no longer exist for reasons other than the ordinary course of business or the implementation of Your document retention policy as disclosed or described in response to an interrogatory or a document request, but You have reason to believe have been in existence, state the circumstances under which they were lost or destroyed, describe the documents to the fullest extent possible, state the document request(s) to which they are responsive, and identify persons having knowledge of the content of such documents.
5. If there have been any changes that affected Your answer to an interrogatory during the time period applicable to that interrogatory, or if Your response to an interrogatory would have been different at any point during the time period applicable to that interrogatory, Your response must describe those changes and the reason(s) for those changes.
6. If You are unable to respond to any request for documents or information fully, explain why such response is incomplete, the efforts made by You to obtain the information, and the source from which the complete response may be obtained.
7. The section headings in the interrogatories and document requests are included solely for convenience or reference and shall not in any way affect the meaning or interpretation of any of the specific interrogatories or requests.
8. The terms "and" and "or" have both conjunctive and disjunctive meanings.

**Questions concerning this CID should be directed to Assistant Attorney General
David M. Ashton (512-936-1781, David.Ashton@oag.texas.gov).**

DEFINITIONS

As used herein:

1. **“Ad Auction”** shall mean any auction to sell Ad Inventory in the Display Advertising Market.
2. **“Ad Exchange”** shall mean a digital marketplace for Ad Inventory that Publishers and Advertisers connect to, by direct or indirect means, in order to buy or sell their online Ad Inventory, including but not limited to AdX, AppNexus, The Rubicon Project, OpenX, ONE by AOL, or Oath, and including all predecessors and successors.
3. **“Ad Impression”** shall mean that specific advertisement displayed to a particular user in a specific ad space on a Publisher’s website.
4. **“Ad Inventory”** shall mean the ad space or impressions that any Publisher has available to sell in the Display Advertising Market.
5. **“Ad Request”** shall mean an electronic message sent from a browser to a Publisher Ad Server, SSP, or Ad Exchange requesting advertising content for insertion or incorporation into a web page. An Ad Request may be directed to a portion or the entirety of a web page, and it may include or consist of a Bid Request.
6. **“AdTech Products”** shall mean any and all systems and software, including predecessors and successors, used in the process of identifying, selecting, transmitting, and/or rendering display ads on a desktop or mobile device, as well as all systems and software, including predecessors and successors, that implement and/or effectuate an Ad Auction, including, but not limited to, receiving, processing, and transmitting Bid Requests, Bid Responses, or related messages. The term includes, but is not limited to, Google Ads, Google AdWords, Display & Video 360 (DV360), DoubleClick Bid Manager (DBM), Campaign Manager, DoubleClick Campaign Manager (DCM), AdX, Google Display Network (GDN), Google Ad Manager (GAM), and DoubleClick for Advertisers (DFA), including all predecessors and successors.
7. **“AdTech Auction Mechanics”** shall mean any and all systems and software that implement, effectuate, or modify any Ad Auction rules, preferences, designs, or features; this term includes but is not limited to Exchange Bidding, Open Bidding, Open Auction, Dynamic Allocation, Enhanced Dynamic Allocation, Optimized Competition, Real-Time Bidding, OpenRTB, Floor Pricing, or First Look.
8. **“Advertiser”** shall mean anyone who buys online Ad Inventory on a Publisher’s webpage to serve ads to those internet users who visit a Publisher’s webpage.
9. **“Advertiser Ad Server”** shall mean those tools used by Advertisers to manage their ad campaigns by directing how Advertisers store and deliver advertisements and tracking where ads are served, such as Your DoubleClick Campaign Manager (now known as Campaign Manager).
10. **“AMP Page”** shall mean a webpage designed and served as an accelerated mobile page, as described on the domain <https://amp.dev/>.
11. **“API”** shall mean application programming interface.
12. **“Attribution Model”** shall mean the rule or rules that determine how a purchase is credited or attributed to an ad.

13. **“Authorized Buyer”** shall mean a buyer participating in Your Authorized Buyers program (*see* <https://support.google.com/authorizedbuyers/answer/9070822> (last visited June 22, 2020); <https://www.google.com/doubleclick/adxbuyer/guidelines/> (last visited June 22, 2020)).
14. **“Behavioral Data”** shall mean all types of data collected regarding user preferences, statuses, and behaviors, regardless of whether acquired directly from the user (**“First-Party Data”**) or indirectly (**“Second-Party Data”** or **“Third-Party Data”**). Behavioral Data includes, but is not limited to, demographic information, device identification, browser identification, location information, browsing history, and session length.
15. **“Bid Request”** shall mean an electronic message containing (directly or indirectly) various pieces of information about the context of a piece of Ad Inventory (page content, URL, etc.) and the user (e.g., cookie data) that can be used to create a bid to display advertising content in one or more specified locations within a web page, irrespective of whether the message or its contents has been modified for transmission to an Advertiser.
16. **“Bid Response”** shall mean an electronic message generated in response to a Bid Request containing (directly or indirectly) a bid price and various pieces of information concerning proposed advertising content to be displayed in one or more specified locations identified in the corresponding Bid Request.
17. **“Client-Side Header Bidding”** shall mean that form of Header Bidding where the user’s browser transmits one or more Bid Requests and receives one or more Bid Responses.
18. **“Clone”** shall mean an exact copy of a document, Source Code Repository, or wiki including all commits, comments, versions, and revision history, if any. (*See* <https://help.github.com/en/github/getting-started-with-github/github-glossary#clone> (last viewed June 22, 2020)). Please note the instruction above, which requires any responsive dynamic material (e.g., a wiki or repository) to be produced in electronic format as a Clone of such material, including but not limited to, all comments, versions, commits, revision history, and material from any associated information tracking systems, including, but not limited to, feature requests, bug reports, issues, sprints, tasks, user stories, project management, and trouble tickets.
19. **“Cost-Per-Click”** or **“CPC”** shall mean that method of payment by which Advertisers pay a certain amount of money each time a user clicks on ad space filled by that Advertiser.
20. **“Cost-Per-Mille”** or **“CPM”** shall mean that method of payment by which Advertisers pay a certain amount of money for every thousand Ad Impressions that occur in a given ad space.
21. **“Demand-Side Products”** shall mean Your products that facilitate the purchase of Ad Inventory, including but not limited to, AdWords, Google Ads, DoubleClick for Advertisers, Google Display Network, DoubleClick Campaign Manager, Google Campaign Manager, DoubleClick Bid Manager, DV360, Google Analytics, Analytics 360, and Google Audience Center.
22. **“Demand Side Platform”** or **“DSP”** shall mean those entities that act on behalf of Advertisers to purchase Ad Inventory by connecting Advertisers to Ad Exchanges or SSPs or help Advertisers find the most effective Ad Impressions, including but not limited to, Display & Video 360 (DV360), DoubleClick Bid Manager, DataXu, MediaMath, AOL, Turn, the Trade Desk, Amobee, Rocket Fuel, Audience Science, AppNexus, Xandr, Adform, and Amazon DSP, and including all predecessors and successors bearing the same or similar functionality.

23. **“Direct Sales”** shall mean the portion of Ad Inventory that is sold directly by a Publisher, including programmatic guaranteed line items managed by the Publisher.
24. **“Display Advertising Market”** shall mean that portion of the online advertising market that displays visual-based advertisements on the website of a Publisher.
25. **“Document”** shall mean the original and all non-identical copies (whether different from the original because of notes, underlining, attachments, or otherwise), all computer files, and any written, printed, or recorded material of every kind in the possession, custody, or control of You. The term “computer files” includes information stored in or accessible through computers, portable computers, handheld devices, workstations, minicomputers, mainframes, servers, backup disks and tapes, archive disks and tapes, and other forms of offline storage, whether on or off the premises of Your place of business. This definition covers electronic mail messages (“e-mail”), wikis, slack messages, text messages, social media messages, and other electronic Documents in Your possession, custody, or control.
26. **“DoubleClick for Publishers”** or **“DFP”** shall mean Your Ad Server used to manage Publisher Ad Inventory before it was renamed along with AdX as Google Ad Manger, including any successor or predecessor product bearing the same or similar functionality.
27. **“Dynamic Allocation”** shall mean that feature of DFP introduced in 2014 that changed the procedure for how a winning bid was selected on DFP.
28. **“Enhanced Dynamic Allocation”** or **“EDA”** shall mean that feature of DFP that allowed AdX to use Dynamic Allocation on Premium Inventory and Direct Sales of Publishers.
29. **“Extended Time Period”** shall mean that period of time from January 1, 2010 to the present.
30. **“First Look”** shall mean the feature of Google Ad Manager described on <https://support.google.com/admanager/topic/9242064> (last viewed June 22, 2020) (*see also* <https://support.google.com/authorizedbuyers/answer/6142666#first-look> (last viewed June 22, 2020)), including any equivalent features in other Google AdTech Products.
31. **“Floor Pricing”** shall mean any system, procedure, or rules used to implement, determine, or define the floor price in an Ad Auction (first-price and/or second-price), including but not limited to the Unified Floor Pricing Rule described on <https://support.google.com/admanager/answer/9298008?hl=en> (last viewed June 22, 2020).
32. **“Google Ad Manager”** or **“GAM”** shall mean the product You refer to as to as Google Ad Manager, which includes Your Ad Server previously known as DFP, as well as Your Ad Exchange previously known as AdX, as well as any successor or predecessor product bearing the same or similar functionality.
33. **“Google Ad Exchange”** or **“AdX”** shall mean Your Ad Exchange before it was renamed Google Ad Manager, as well as the current Ad Exchange functionality of Google Ad Manager, and includes any successor or predecessor product bearing the same or similar functionality.
34. **“Google Ads”** or **“AdWords”** shall mean Your Demand Side Platform that allows Advertisers to buy display space on the Google Display Network and/or search advertising, and includes any successor or predecessor product bearing the same or similar functionality.

35. **“Google Cloud”** shall mean any cloud computing services provided by You under the brand Google Cloud, including any successor or predecessor product or service bearing the same or similar functionality. (See <https://cloud.google.com/> (last viewed June 22, 2020))
36. **“Google Display & Video 360”** or **“DV360”** shall mean the advertising product for managing the purchasing of Ad Inventory for Advertisers which you currently market under the name DV360, and shall include any successor or predecessor products bearing the same or similar functionality, including DoubleClick Campaign Manager, Google Audience Center, DoubleClick Studio, and DoubleClick Bid Manger.
37. **“Google Group”** shall have the meaning of the term as used on the webpage <https://support.google.com/a/answer/33329> (last viewed June 22, 2020), including e-mail distribution lists, collaborative inboxes, and Q&A forums. The term **“Google Group”** shall include any computer account that can be assigned or has been assigned access rights for a computer resource; has been assigned an e-mail address; and/or can serve as a proxy or an alias for a collection of one or more other computer accounts.
38. **“Google Publisher Tag”** shall have the same meaning as found at <https://developers.google.com/doubleclick-gpt/> (last viewed June 22, 2020).
39. **“Header Bidding”** shall mean that form of Ad Auction where Ad Exchanges and/or SSPs are invited to submit bids for an Ad Impression before an Ad Request is sent to the Publisher Ad Server.
40. **“Identify”** with respect to a Document means to give, to the extent known, the type of Document, the general subject matter, the date of the Document, and the author, addressees, and recipients of the Document.
41. **“Identify”** with respect to a Person means to give, to the extent known, the Person’s full name, title, and when referring to a natural Person, additionally, the present or last known place of employment. Once a Person has been first identified in accordance with this definition, only the name of that Person need be listed in response to subsequent discovery requesting the identity of that Person.
42. **“Last Look”** shall mean any ability for You to bid on Ad Inventory after all other bids have been submitted and to know the amount of the bid that You need to beat in order to win the Ad Auction.
43. **“Last Touch Attribution”** shall mean those types of Attribution Models whereby credit for a consumer’s purchase is assigned based on the consumer’s last point of contact.
44. **“Open Bidding”** or **“Exchange Bidding”** shall mean that feature of DFP which enables Publishers using DFP to connect to demand from third-party Ad Exchanges to AdX over a server-to-server connection, allowing multiple Ad Exchanges to submit bids simultaneously. This definition also includes any successor or predecessor AdTech Auction Mechanics bearing the same or similar functionality, e.g., any and all iterations of the pre-release projects You refer or have referred to as Jedi (e.g., Jedi+, Jedi++ or Demand Syndication).
45. **“Open Bidding Partner”** or **“Exchange Bidding Partner”** or **“Yield Partner”** shall mean any Ad Exchange, SSP, Advertiser, or other buyer, who is configured to and authorized to interface with Your Real-Time Bidding infrastructure to receive Bid Request messages and to submit corresponding Bid Response messages. (See <https://developers.google.com/authorized-buyers/rtb/>

- [open-bidding#receive-bid-requests-with-bidrequest](#) (last viewed June 22, 2020); <https://support.google.com/admanager/answer/7128453> (last viewed June 22, 2020)).
46. **“Optimized Competition”** shall mean the feature of Google Ad Manager described on <https://support.google.com/admanager/answer/7422526?hl=en> (last viewed June 22, 2020), including any equivalent or similar functionality in other Google AdTech Products.
47. **“Original TX CID”** shall mean the CID issued to You by the OAG on or about September 9, 2019.
48. **“Person”** is defined as set forth in TEX. BUS. & COM. CODE § 15.03(3), and includes any natural person, corporate entity, partnership, association, joint venture, government entity, or trust.
49. **“Publisher”** shall mean anyone who serves content on the internet that is monetized by selling Ad Inventory to Advertisers.
50. **“Publisher Ad Servers”** shall mean those tools used by Publishers to determine how Ad Inventory is filled, such as DFP, Google Ad Manager, OpenX, FreeWheel, or AdZerk, or any predecessors or successors bearing the same or similar functionality.
51. **“Real-Time Bidding”** or **“RTB”** shall mean that process by which Advertisers submit bids for Ad Impressions in real-time.
52. **“Relating to”** shall mean in whole or in part constituting, containing, concerning, embodying, reflecting, discussing, describing, analyzing, identifying, stating, referring to, dealing with, or in any way pertaining to.
53. **“RTC”** or **“Realtime Config”** shall mean that feature of AMP that enables Publishers to call up to five other servers for each piece of Ad Inventory (See <https://github.com/ampproject/amphtml/blob/master/extensions/amp-a4a/rtc-documentation.md> (last viewed June 22, 2020)).
54. **“Source Code”** shall mean human-readable instructions written in a language that can be executed by a computer. The term “Source Code” includes instructions that can be understood by an interpreter as well as instructions that must first be compiled or assembled prior to execution by a computer. The term “Source Code” further includes any associated files, including but not limited to comments, read me files, and change logs, without regard to whether these files can be executed.
55. **“Source Code Repository”** shall mean a file archive, web hosting facility, or platform for the storage, development, and version control of Source Code, including associated documentation, web pages, and other works. This term includes, but is not limited to GitHub, SVN, Google Code, and SourceForge. This term also includes all associated branches, forks, and submodules of each said repository.
56. **“Supply Side Platforms”** or **“SSP”** shall mean those entities that organize demand for Ad Inventory and connect Publishers to Ad Exchanges to sell Ad Inventory, including those that allow Publishers to connect to DSPs, such as AdX, AppNexus, Xandr, PubMatic, Rubicon Project, OpenX, One by AOL, and Oath, or any predecessors or successors bearing the same or similar functionality.
57. **“T-50 Advertisers”** shall mean those top fifty Advertisers identified in response to Original TX CID interrogatory number 123.

58. **“T-50 Publishers”** shall mean those top fifty Publishers identified in response to Original TX CID interrogatory number 124.
59. **“Unified Auction”** shall mean that feature of Open Bidding which allows Open Bidding Partners, DSPs, Header Bidding winners, and Direct Sales to compete in a simultaneous first-price Ad Auction.
60. **“You”, “Your”, “Alphabet”, or “Google”** shall mean Alphabet Inc., its past and present officers, employees, agents and representatives, parents and predecessors, divisions, subsidiaries, affiliates, partnerships and joint ventures. The terms “subsidiary”, “affiliate”, and “joint venture” refer to any firm in which there is total or partial ownership of twenty-five percent or more or total or partial control between the company and any other Person or entity.

INTERROGATORIES

AdTech Products and Information

1. Identify all Source Code Repositories relating to each of Your past, present, and proposed AdTech Products, including a detailed description of the purpose and function of each.
2. List the name and provide a brief description of each of Your AdTech Products over the Extended Time Period; for each such product, list any pre-release or internal code names or code words by which it has been known, its status (e.g., in use, retired, or renamed), all prior changes in status (including the date of any change in status; e.g., launch date, rebranding date), and any successor or predecessor product bearing the same or similar functionality (in whole or in part).
3. Identify all software tools (both internally developed and purchased or licensed from a third party) You use to manage the development of Your AdTech products.
4. Identify and describe in detail all categories or types of information which You:
 - a. receive from within an Ad Request, including all Behavioral Data associated with the viewer of a webpage and all contextual information concerning the content of the web page or the publisher of the web page (see <https://developers.google.com/DoubleClick-gpt/guides/get-started> (last viewed June 22, 2020));
 - b. transmit to any non-Google Ad Exchange or DSP upon Your receipt of an Ad Request; Your response to this sub-part should also identify any way in which such information differs from the information You receive from within an Ad Request;
 - c. transmit to any Authorized Buyer or Open Bidding Partner upon Your receipt of an Ad Request; Your response to this sub-part should also delineate any way in which such information differs from the information You receive from within an Ad Request;
 - d. access or retrieve as a result of or in anticipation of Your receipt of any information from within an Ad Request; Your response to this sub-part should also include all of Your reasons for accessing or retrieving such information, as well as the source(s) of such information; and
 - e. store, retain, or utilize with respect to Your receipt of an Ad Request; Your response to this sub-part should also include all of Your reasons for storing or retaining such information, as well as the source(s) of such information.
5. Identify and describe in detail any advantages to any of Your AdTech Products arising from Your access to, accumulation of, or use of Behavioral Data.
6. Identify and describe any advantages to any of Your AdTech Products arising from Your maintaining information that relates to past bidding behavior of bidders into an Ad Auction You conduct, including, but not limited to, Exchange Bidding and Open Bidding.
7. Explain how You (including but not limited to GAM, AdX, DFP, AdSense, Google Ads, or other Google products and services) use the data You collect about Publishers' websites and profiles of their users. For example, but without limitation, this request pertains to audience profiles for the Publisher's audience, reach, engagement, Publisher profiles, Ad Inventory assessments or evaluations or ratings, Publisher or inventory quality scores, ratings, user or audience

demographics, affinities, or other segmentation information or evaluations that You create or maintain about the website users.

AdTech Auction Mechanics

8. List the name and provide a brief description of each of Your AdTech Auction Mechanics over the Extended Time Period; for each such auction mechanic, list any pre-release or internal code names or code words by which it has been known, its status (e.g., in use, retired, or renamed), all prior changes in status (including the date of any change in status; e.g., launch date, rebranding date), and any successor or predecessor auction mechanic bearing the same or similar functionality (in whole or in part).
9. List and describe in detail each feature change to GAM, DFP, and AdX during the Extended Time Period, including but not limited to changes to reservations, line item types, line item priorities, any changes involving how line items compete with one another, and any changes involving how other factors beyond line item types and priorities affect ad selection.
10. Describe in detail how guaranteed line items and remnant line items affect the bidding price AdX submits to DFP or GAM or how they otherwise influence the auction process. As part of your response, describe how this has changed, if at all, throughout the Extended Time Period.
11. The time period applicable to this interrogatory is the Extended Time Period. List the specifications and descriptions of the data transferred or communicated between:
 - a. GAM, DFP, and AdX under Dynamic Allocation and Enhanced Dynamic Allocation; and
 - b. GAM or DFP and non-Google Ad Exchanges.
12. Describe in detail the extent, if any, to which You have developed or used any sort of software or algorithm to predict present or future real-time bids from any non-Google Ad Exchange or DSP.
13. Identify and describe in detail all categories or types of information which You:
 - a. use to conduct an Ad Auction to determine the winning bid amongst the bids received to display an ad, including the source(s) of such information;
 - b. provide to the submitter of a bid regarding the conduct, details, and results of an Ad Auction;
 - c. provide to the Publisher of the web page corresponding to an Ad Request regarding the conduct, details, and results of an Ad Auction; and
 - d. use to dynamically alter the conditions or circumstances of an Ad Auction, including but not limited to, alterations of bid floors, bid weights, and bid time outs.
14. Explain how You convert a winning bid from a second-price AdX or GAM auction to compete in a first-price auction such as Open Bidding.
15. Identify any restrictions on a Publisher's use of non-Google Ad Exchanges or SSPs when using DFP or GAM to connect to advertising demand, and explain Your technical or business justifications for each. As part of Your explanation, describe any circumstances under which a Publisher is allowed to serve an ad using DFP or GAM without allowing one of Your Demand-Side Products to bid on that ad inventory.

16. Explain Your business rationale for Your decision to provide “the minimum bid price to win after the auction closes” (see <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)) and, if You do not provide such information to those who bid on an Ad Auction via Header Bidding, state Your business rationale for why.
17. Identify all Authorized Buyers and Open Bidding Partners with whom you share information relating to the conduct of an Ad Auction (including the number of and content of competing bids). As part of Your response, identify any other parties with whom you share the same or similar information.
18. Explain Your business rationale for Your decision(s) to share information relating to Ad Auctions with the parties You identified in response to the foregoing Interrogatory. As part of your response, identify and explain any incentive You create or intend to create by such sharing.
19. To the extent You do not share information relating to the conduct of an Ad Auction (including the number of and content of competing bids) with parties who are not Open Bidding Partners or Authorized Buyers, explain Your business rationale for Your decision(s).

Relationships between Products

20. List, for any time during the Extended Time Period, any differences in data access, API access, or feature availability between:
 - a. DFP or GAM when interfacing with AdX versus non-Google Publisher Ad Servers when interfacing with AdX;
 - b. DFP or GAM when interfacing with AdX versus non-Google SSPs when interfacing with AdX;
 - c. AdX when interfacing with DFP or GAM versus non-Google Ad Exchanges when interfacing with DFP;
 - d. AdX or DFP or GAM when interfacing with AdSense versus non-Google Ad Exchanges when interfacing with AdSense;
 - e. Google Ads when interfacing with AdX, DFP, or GAM versus non-Google DSPs when interfacing with AdX, DFP, or GAM;
 - f. AdX, DFP, or GAM when interfacing with Google Ads versus non-Google Ad Exchanges when with Google Ads;
 - g. DV360 when interfacing with AdX, DFP, or GAM versus non-Google DSPs when interfacing with AdX, DFP, or GAM;
 - h. AdX, DFP, or GAM when interfacing with DV360 versus non-Google Ad Exchanges when interfacing with DV360;
 - i. SA360 when interfacing with DFP or GAM versus SA360 interfacing with non-Google Publisher Ad Servers;
 - j. Google Ads when interfacing with AdSense versus non-Google DSPs when interfacing with AdSense;

- k. Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite) when interfacing with AdX, DFP, or GAM versus non-Google advertising analytics tools when interfacing with AdX, DFP, or GAM;
- l. Google Ads when interfacing with Chrome versus non-Google DSPs when interfacing with Chrome; and
- m. AdX, DFP, or GAM when interfacing with Chrome versus non-Google Ad Exchanges or Publisher Ad Servers when interfacing with Chrome.

Google Ad Manager

- 21. Describe in detail all steps You have taken and any steps You plan to take (with timelines) to integrate (or otherwise co-market) Your products formerly known as DFP and AdX together into Your product now known as Google Ad Manager, including all steps relating to any technical, organizational, operational, marketing, and personnel changes.
- 22. Identify any advantages to You or to Publishers from integrating the functionality of DFP and AdX.
- 23. Identify all possible commission and fee structures (including any revenue sharing) that AdX or GAM charge for hosting an Ad Auction, and how You determine which commission and fee structures to apply.
- 24. With respect to Your decision that Publishers “will not be able to join the Bid Data Transfer file with other Ad Manager Data Transfer files” (*see* <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)):
 - a. list and describe the categories and types of information You provided to Publishers as part of any Bid Data Transfer or other Ad Manager Data Transfer files before this change;
 - b. list and describe the categories and types of information You provide to Publishers as part of any Bid Data Transfer or other Ad Manager Data Transfer files after this change;
 - c. explain Your business rationale for this change; and
 - d. state the extent to which this change impacts Publishers’ ability to link or reconcile bidding-level data (i.e., including how much each bidder bids) with individual-impression data (i.e., including the price at which the Ad Impression was sold), including the extent to which the new Bid Data Transfer files You provide include impression-level data or data relating to those participating in an Ad Auction via header bidding, as well as the existence or non-existence of common fields between data sets (e.g., KeyPart or TimeUsec2) to enable linking bidding-level data to impression-level data.
- 25. Have You made, considered making, or considered whether to make, any offer, formal or informal, to sell (or otherwise divest) or received any offer, formal or informal, to purchase (or otherwise acquire) any portion of Your business relating to GAM? If so, describe in detail all of Your internal considerations and any related negotiations, including identification of all potential purchasers, the portion(s) of Your business at issue, the substance and status of Your consideration or negotiations, and all relevant dates (e.g., date of offer to buy or sell, date on which transaction was abandoned, etc.).

Header Bidding and Open Bidding

26. Identify all Persons who work (or have worked) on or with any of Your internal operations groups, employee groups, investigative teams, or task forces which have studied or examined (or are studying or examining) the effects of Header Bidding on any aspect Your business.
27. Identify any reason why You might throttle the number or rate of queries made by any of Your AdTech Products to any third-party Ad Exchange.
28. Describe the function of Your Header Bidding Observatory Team, identify each Person who is or has ever been a member of that team, and describe each such Person's role and function on that team. (*See e.g.*, GOOG-TEX-00000804-05)
29. Identify each internal team or workgroup You have ever created, in whole or in part, for the purpose of (or which You have otherwise tasked with) studying the business and/or competitive effects of Header Bidding, including identification of all past and current members of each such team or workgroup and each such person's role or function within such team or workgroup.
30. Identify and explain each reason You are aware of for why Publishers and SSPs use both Header Bidding and Open Bidding in combination to sell Ad Inventory.
31. Identify the key performance metrics You use or have used in evaluating Open Bidding, and explain the results or conclusions generated from all simulations or experiments related to Open Bidding, including but not limited to the experiments referenced in GOOG-TEX-00452550-52.
32. Identify the key performance metrics that You use or have used to compare the performance of Open Bidding to Header Bidding. To the extent you do not consider yield or cookie match rate to be key performance metrics, please explain why not.
33. Describe any sales strategy, marketing effort, leverage used, or any other efforts undertaken by You to solicit:
 - a. any non-Google Ad Exchanges to become Open Bidding Partners or to otherwise increase their use of Open Bidding; and
 - b. Publishers to participate in Open Bidding.
34. Describe the characteristics of Ad Exchanges relevant to Your evaluations of whether to allow them to become Open Bidding Partners, including explanation of any characteristics which have caused or would cause You to reject them as an Open Bidding Partner.
35. Explain Your rationale(s) and justification(s) (business or otherwise) for, and the timing of, Your purported removal of Last Look.
36. Describe the results of, or conclusions drawn from, any experiment, analysis, or simulation You conducted or are aware of which relates to the impact of Open Bidding on Header Bidding, or vice versa, including, but not limited to, any impact on Publisher revenue from the adoption of Header Bidding, the win rate of Header Bidding winners in Open Bidding or against AdX, and the volume of inventory sold using Header Bidding solutions.
37. Describe the conditions under which any of Your AdTech Products have or will bid into the in-house Ad Auctions of any Publisher, including identification of the criteria You evaluate or have

- evaluated in making such decisions and the extent to which You consider the Publisher's participation in Open Bidding or use of Header Bidding.
38. Describe any benefit or advantage You have received or expect to receive as a result of Facebook's participation in Open Bidding.
 39. Describe any benefit or advantage You have received or expect to receive as a result of the Network Bidding Agreement between You and Facebook.
 40. Explain Your relationship with Facebook, including all of the ways in which Facebook interacts with any of Your AdTech Products.
 41. Explain the purpose of Your policies concerning multiple Ad Requests for a single ad slot, identify any changes You have made to such policies (with an indication of the date You made each such change), and identify any changes You intend to make to such policies in the future (with an indication of the date You intend to make each such change).
 42. Describe any increased visibility into Advertiser creatives from different demand sources that You gain when an ad is sold through Open Bidding as compared to being sold through a third-party Ad Exchange or SSP, or through traditional ad intermediation, and explain how You use or have used such information.
 43. State and explain Your rationale(s) for not allowing non-Google DSPs to bid directly into Open Bidding, and state the extent to which You have any plans to change this policy in the future.
 44. Describe how You calculate or determine Your revenue share when a bidder from a non-Google Ad Exchange wins an Ad Auction through Open Bidding.
 45. Identify the amount of revenue that You receive when a bidder from a non-Google Ad Exchange wins an Ad Auction through Open Bidding. As part of Your answer, include information sufficient to identify the mean revenue per transaction, median revenue per transaction, average difference between high and low amounts, and the amount of that revenue as a percentage of your overall ad intermediation revenue. Please also break this information down by the product type or revenue source.
 46. State and describe how, if at all, Your revenue share(s) differ between Open Bidding Partners and other demand sources. Your answer should include revenue share comparisons of Authorized Buyers and Google DSPs (DV360 or Google Ads).
 47. Identify any fees You charge to Publishers, SSPs, or Ad Exchanges due to the complexity of their line item configuration, state Your justification(s) for doing so, and describe the criteria You use to determine whether to charge such fees. To the extent that these fees vary based on the actual or suspected use of Header Bidding, identify the variations and Your justifications for doing so.
 48. Identify any fees You charge to a Publisher due to the complexity of their data reports, state Your justification(s) for doing so, and describe the criteria You use to determine whether to charge such fees.
 49. Identify any fees You charge to Publishers, SSPs, Advertisers, DSPs, or Ad Exchange when a Header Bidding bidder wins an auction to serve an ad that is ultimately served through DFP or GAM. Further identify how You calculate any such fees, state whether You ever adjust or waive such fees (and if so, the conditions under which you do), and state whether You charge the same

fees when the winning bid comes from the AdX or GAM auction (or is they are also modified or waived).

50. Identify any fees You charge to a Publisher who exceeds the number of line items or number of rules allowed by DFP or GAM.

Unified Auction and Unified Pricing Rules

51. With respect to Your formulation and/or placing of any bid within Unified Auction, describe in detail the extent, if any, to which You currently or have ever:
- taken into account the current bid of any other bidder(s) participating in the Ad Auction, including those participating via Header Bidding;
 - taken into account the past bidding behavior of any other bidder(s) participating in the Ad Auction, including those participating via Header Bidding; and
 - delayed Your placement of a bid in order to account for any real-time information; Your answer should include a description of each category or type of such real-time information.
52. Explain any process by which Publishers and Advertisers can verify that Google no longer has a Last Look advantage from Dynamic Allocation in Open Bidding or Unified Auction. As part of Your answer, explain whether this applies equally to non-guaranteed line items and other non-guaranteed advertising sources.
53. Describe the economic rational or technical reasons for Your decision to apply any Publisher price floor to all programmatic buyers for Publishers participating in Open Bidding as part of the transition to a Unified Auction format.
54. Describe any efforts You have made to assist Publishers in comparing their Header Bidding data with the Unified Auction data reporting You provide.

Reserve Price Optimization; Dynamic Revenue Sharing; Dynamic Flooring

55. Describe in detail how and when You utilize a dynamic price floor to automatically change the minimum sell price for ads sold through AdX. As part of Your response, identify whether or not You restrict (or have ever restricted) the ability to utilize such a feature to transactions or Publishers who are using AdX.
56. Describe in detail how Reserve Price Optimization (“RPO”) increases revenue for an Ad Impression and state whether RPO can increase the price paid by the Advertiser in a second-price auction. As part of Your answer, identify all inputs and variable that You consider (or have considered) in determining what a buyer is willing to pay, explain whether or not You notify (or have notified) the buyer that RPO is being used to adjust the Publisher’s reserve price, and describe the extent to which You utilize historical bid data to determine the RPO reserve price.
57. State whether the Your internal references to the terms “Bernake,” “Global Bernake,” and “Dynamic Revenue Sharing” (or “DRS”) are synonymous. If they are not, explain the different circumstances in which You adjust revenue share based on “Bernake,” “Global Bernake,” or “Dynamic Revenue Sharing” (or “DRS”).
58. Describe in detail how Dynamic Revenue Sharing (“DRS”) changes Your revenue share, including explanation of the effect that DRS has on the price paid by Advertisers. Along with Your response,

identify the number of monthly impressions won by You that would not have been won without DRS, expressed as a percentage of all impress won by You for each month since you began using DRS until the present day.

59. Explain the role that negative revenue share DRS and bid-oblivious have on Publishers' revenue, Advertisers' prices, or Your Revenue. As part of Your response, explain the conditions under which You have accepted (or under which You would accept) a negative revenue share in order to win a particular Ad Impression.
60. Describe any predictions or knowledge of any actual or anticipated effect(s) that Advertisers' awareness of DRS or RPO would have on the use of Your Demand-Side Products, the revenue that You receive from Your Demand-Side Products, or on Your Quality efforts (*see, e.g.,* GOOG-TEX-00082760).

Demand Side

61. Identify any commission(s) or fee(s) You charge to Advertisers who purchase Ad Inventory through Google Ads or AdWords.
62. Explain whether the AdWords or Google Ads auction that occurs prior to Unified Auction is a first-price or second-price auction. As part of Your answer, describe how the winning bid from the AdWords or Google Ads auction participates in Unified Auction.
63. Explain Your business justification(s), technical reason(s), or other rationale(s) for restricting AdWords or Google Ads Advertisers to purchasing display Ad Inventory exclusively from Google Display Network other than for remarketing purposes.
64. Describe the conditions under which and to whom You disclose log-level bid data from AdWords or Google Ads.
65. Identify any default ad campaign settings in AdWords or Google Ads that allow You to direct part of an Advertiser's ad spend to display inventory available on the Google Display Network or the Google Search Network. As part of your answer, identify the date that any such default setting was implemented.
66. Identify and describe in detail any policies or procedures that You have or have had regarding the use of Publishers' configuration data to recommend or direct that Publishers change their configurations to enable or preference Your AdTech Products.
67. Describe in detail any analysis, studies, experiments, or testing (including A/B testing or other comparative analysis) relating to the default campaign type in AdWords and/or the potential effects of any change or potential change thereto, including any analysis, studies, or testing relating to (or otherwise underlying or informing) Your decision to set the default campaign type in AdWords to include both Google Search Network and Google Display Network, and any effects such setting has had or could have on You or Publishers, Advertisers, Ad Exchanges, DFPs, or SSPs.
68. Explain how DV360, or any of its predecessor or successor products, selects the winning bid that it will submit to AdX, Open Bidding, Unified Auction, or a third-party Ad Exchange.
69. Identify any efforts, polices, or strategies to prevent any of Your Demand-Side Products from buying Ad Inventory through Header Bidding auctions. As part of Your answer, explain Your business justifications for any such decision.

70. Explain the extent to which Google Ads or DV360, or any of their predecessor or successor products, use algorithms, strategic bidding technologies, or bid shading tools to predict the bidding behavior of Advertisers or DSPs or to otherwise determine the amount they need to bid to win an Ad Auction. As part of Your answer, identify any data inputs to any strategic bidding technologies.
71. Identify and describe in detail (including a quotation of the relevant text of) any sort of volume discount, rebate provision, or minimum purchase requirement which You have offered to any Advertiser, Publisher, SSP, DSP, or Ad Exchange, and for each such discount, provision, or requirement, identify every Advertiser, Publisher, SSP, DSP, or Ad Exchange who has accepted or rejected such discount, provision, or requirement.
72. Identify and describe in detail all categories or types of Behavioral Data which You obtain via any of Your products (including, e.g., search, Chrome, maps, YouTube, GAM, etc.) and which You also utilize in any way for targeting ads to users, reporting, and/or attribution on DV360 or Google Ads. For each such category or type of Behavioral Data, state whether, and the extent to which, You make such data available (in the same format) to any non-Google DSP; to the extent You do not make such data available (in the same format), state all of Your reason(s).
73. Identify all possible fees that You charge (or have charged) any DSPs or Advertisers who purchase Ad Inventory through any of Your Demand-Side Products.

Data Analytics and Verification

74. Describe in detail all of Your reasons for instituting private APIs in any of Your AdTech Products or AdTech Auction Mechanics, or for otherwise limiting third-party data usage or portability.
75. Describe in detail all categories and types of information accessible through Your APIs by Advertisers with respect to their advertising campaigns.
76. With respect to each category and type of information You identified in response to the preceding Interrogatory, describe in detail the extent to which, and manner by which, Advertisers can independently verify such information.
77. Describe in detail Your reasons, technical or otherwise, for prohibiting Advertisers from using third-party data providers to create target audiences.
78. Describe in detail the manner by which You identify fraudulent Ad Impressions.
79. Describe in detail all Attribution Models You make available to any Advertisers.
80. Describe in detail Your process and methodology for determining how a sales credit may be assigned to an advertisement shown in response to a user-generated search query.
81. Describe in detail Your process and methodology for determining how a sales credit may be attributed to a display advertisement.
82. Explain how “KeyPart” and “TimeUse2” allows Publishers to link impression-level data with bidding data from AdX and Open Bidding. As part of Your answer, please explain any benefit from linking impression-level data with bidding data.
83. Explain the business rationale for Your decision to introduce a new type of data transfer file containing bidding data from Authorized Buyers and Open Bidding, but not impression level-data

or Header Bidding data. As part of Your answer, identify any alternate means by which Publishers can link their bidding data with impression-level data.

84. Explain the process by which Publishers can link Your data transfer file with performance data from Header Bidding auctions.
85. To the extent You contend that Your restrictions regarding Publishers' access to user data (or otherwise preventing Publishers from matching user data with bidding data) are necessary in order for You to comply with EU General Data Protection Regulation 2016/679 or other privacy law, please provide an explanation for such contention.

Revenue/Pricing/Profits

86. List and describe in detail each category of revenue You obtain when one or more of Your products or services is used to effectuate an Advertiser's purchase of Ad Inventory, including by way of example, take rate, ad-serving fees, service fees (for audience targeting or otherwise), and/or revenue shares. For each such category, list the general source of the revenue (e.g., publisher, advertiser, etc.) and describe your pricing structure (e.g., the CPC or CPM, percentage of revenue, etc.).
87. Explain the process whereby ad spend from Advertisers using Google Ads or DV360 is allocated between You and Google Network Member properties, and explain the criteria you use for making such allocation; provide separate answers for Google Ads and DV360.
88. Describe in detail the methodology by which You convert CPC bids placed via any of your Demand-Side Products to the CPM bids used in Unified Auction.
89. For the Extended Time period, separately list the revenue for each quarter for each of Your AdTech Products.
90. List the bates number(s) of all material you produced in response to document request number 97 in the Original TX CID ("Produce Documents sufficient to show Your share of Programmatic Advertising revenue (i.e. the total amount paid by Advertisers in respect of ads using your services) in comparison to the portion of Programmatic Advertising revenue received by Publishers for the Extended Time Period.").

Accelerated Mobile Pages (AMP)

91. Identify all efforts, technical or otherwise, by any third-party Ad Exchange or SSP to increase the number of demand sources able to bid on Ad Inventory on AMP Pages, including any efforts based on traditional ad mediation techniques, Header Bidding solutions, or by any other means.
92. Explain the benefits, if any, that You receive by implementing timeout restrictions on Ad Requests for AMP Pages, including any effect of shorter or longer timeout restrictions, as well as any other variables You consider with respect to modifying or implementing longer or shorter timeout restrictions. As part of Your answer, please explain how such timeout restrictions are implemented differently when serving ads on non-AMP mobile pages or non-AMP desktop pages.
93. Identify all third-party vendors of ad analytics services who You permit to interoperate with any of Your AdTech Products or who otherwise are able to access Your data regarding ad performance related to an AMP Page.

94. Identify and explain Your assessment of all of the factors contributing to (or causes of) lower monetization of Publisher Ad Inventory on AMP Pages compared to their non-AMP Page counterpart on mobile.
95. Identify and explain Your assessment of all of the factors contributing to (and causes of) lower monetization of Publisher Ad Inventory on AMP Pages compared to their non-AMP Page counterpart on desktop.
96. Describe the process by which You have given or currently give preference to bids to serve AMP-compliant ads over bids to serve non-AMP-compliant ads for Ad Inventory on AMP Pages through AdX or GAM, including explanation of the criteria You use for determining when an AMP-compliant ad is given preference and when it is not.
97. Describe the process by which You have given or currently give preference to serving AMP-compliant ads over serving non-AMP-compliant ads for Ad Inventory on AMP Pages through AdX or GAM, including explanation of the criteria You use for determining when an AMP-compliant ad is given preference and when it is not.
98. Describe any technical obstacles to implementing RTC on AMP Pages to support Client-Side Header Bidding.
99. Explain Your economic rationale for designing RTC on AMP Pages so that it would not support Client-Side Header Bidding.
100. Explain Your justifications (business, technical, or otherwise) for deprecating remote.html in AMP.

YouTube

101. Explain all of Your business justification(s) for removing the ability of non-Google DSPs to bid on YouTube Ad Inventory in January 2016.¹
102. Explain all of Your business justification(s) for not making YouTube TrueView Ad Inventory available for purchase via non-Google DSPs. The time period applicable to this interrogatory is the Extended Time Period.
103. Explain all of Your business justification(s) for not making YouTube mobile Ad Inventory available for purchase via non-Google DSPs. The time period applicable to this interrogatory is the Extended Time Period.
104. State the percentage of total YouTube Ad Inventory available for purchase via non-Google DSPs prior to January 2016. As part of Your answer, state the manner in which you determined this percentage. The time period applicable to this interrogatory is the Extended Time Period.
105. Identify all DSPs that have placed a bid for an Ad Impression on YouTube Ad Inventory through AdX during the Extended Time Period.

¹ Your answer to interrogatory 109 in the Original TX CID states that “As of January 2016, YouTube inventory was not available for purchase via any Ad Exchange”; to the extent that “January 2016” is *not* the time period in which You withdrew the ability of non-Google DSPs to bid on (one or more types of) YouTube Ad Inventory, state the date on which You made such change, and use that date in place of “January 2016” for each Interrogatory and Request for Documents in this CID containing the phrase “January 2016.”

106. Describe the means by which third-party DSPs were permitted to bid on YouTube Ad Inventory prior to January 2016. To the extent your answer varies depending on the type of Ad Inventory (e.g., mobile, TruView, etc.), indicate as such for all such types of YouTube Ad Inventory. The time period applicable to this interrogatory is the Extended Time Period.
107. From January 2016 to the present, describe the process of how Advertisers are able to bid on YouTube Ad Inventory. As part of Your answer, describe how this process was different before January 2016.
108. Prior to January 2016, state how much quarterly revenue You generated by virtue of non-Google DSPs bidding directly into AdX for YouTube Ad Inventory. The time period applicable to this interrogatory is the Extended Time Period.
109. Prior to January 2016, state how much revenue by quarter You generated from Advertisers purchasing YouTube Ad Inventory through one or more of Your Demand-Side Products. The time period applicable to this interrogatory is the Extended Time Period.
110. For each quarter from January 2016 to the present, separately state how much revenue You generated by virtue of YouTube Ad Inventory through one or more of Your Demand-Side Products.

Chrome

111. Do You contend that the EU General Data Protection Regulation 2016/679 or any other law requires You to implement any form or degree of third-party cookie blocking on Chrome? If so, state the reasons for such contention in detail. As part of Your answer, identify each provision of law which You contend requires such conduct.
112. State how You utilize Chrome user login data for any ad targeting, attribution, or reporting purposes.
113. State whether, and the extent to which, You utilize Chrome user login data to refresh cookies or otherwise connect user behavior to any of Your AdTech Products or AdTech Auction Mechanics.
114. State whether, and the extent to which, each instance of Chrome transmits a unique identifier to You irrespective of whether the user has logged into a Google account. To the extent it does, state whether, and the extent to which, You connect, join, or otherwise associate such identifier with any of Your AdTech Products or AdTech Auction Mechanics for any purpose.

Mobile

115. Identify and describe any of Your policies, actions, or attempts to limit calls into Ad Auctions on GAM, AdX, or AdMob from any non-Google DSPs or Ad Exchanges with respect to mobile Ad Inventory.
116. State and describe the extent to which the presence of a price floor that is higher than the second price in an Ad Auction on GAM, AdX, or AdMob affects Your decision to bid on mobile Ad Inventory. As part of Your answer, describe any changes to Your bidding algorithms to account for the presence of a price floor that is higher the amount of the second price in Your Ad Auction.
117. Describe any of Your efforts to introduce real-time bidding into the market for mobile Ad Inventory. As part of Your response, explain the role that Jedi for Networks played in that process and its effect on the adoption of Header Bidding for mobile Ad Inventory.

118. Identify and describe any restrictions You have instituted to restrict mobile Publishers from mediating with non-Google ad networks.
119. Describe Your response to the introduction of client-side Header Bidding open RTB solutions on mobile apps, including the extent to which You have purchased Ad Inventory through this technology and, if you have, the identity of the companies You partnered with in bidding on mobile app Ad Inventory through Client-Side Header Bidding or other open RTB solutions.

Google Cloud

120. Describe in detail how cloud computing technology is used in conjunction with any of Your AdTech Products, including any relationship between Google Cloud and any of Your AdTech Products.
121. Describe in detail how any non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server may experience cost savings, increased revenue, technical benefits (including the extent of any reductions in latency), or operational efficiencies when using Google Cloud.
122. Describe in detail the pricing structure for Google Cloud if used by a non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server, including a description of any discount(s) available to them (and identification of any criteria needed to qualify for such discount(s)).

Internal Communications Channels

123. Identify all Google Groups associated with (or which You otherwise use with respect to the development, maintenance, or operation of) any of Your AdTech Products or AdTech Auction Mechanics, including, but not limited to the Google Groups identified in Appendix A. For each such Google Group, describe how members are added to the Google Group (e.g., by invitation only or automatically upon request), including any limitations on the users permitted to join such Google Groups, and identify:
 - a. its name and description;
 - b. its e-mail address;
 - c. its e-mail settings (e.g., subject prefix, footer, and auto replies);
 - d. its type (e.g., e-mail list, collaborative inbox);
 - e. its defined roles (*see, e.g.,* <https://support.google.com/groups/answer/2464975> (last viewed June 22, 2020) and <https://support.google.com/a/answer/9007750> (last viewed June 22, 2020)), including but not limited to owner, manager, and member; and
 - f. for each defined role, the permissions associated with that role.
124. Identify all other non-email electronic group messaging systems, platforms, or channels, including but not limited to any slack channels, wikis, and hangouts, which You use to communicate internally in connection with (or which You otherwise use with respect to the development, maintenance, or operation of) any of Your AdTech Products or AdTech Auction Mechanics. For each such system, platform, or channel, provide a description and a list of users.

General

125. With respect to any company who provides, has provided, has developed, or is developing any AdTech Product(s), identify each such company in which You have, or have had, any ownership interest, and state the amount and nature of Your ownership interest. The time period applicable to this interrogatory is the Extended Time Period.
126. Describe any efforts You are aware of by Amazon, Facebook, or You to trade access to any Behavioral Data in exchange for any access to premium Publisher Ad Inventory.
127. For each of the following terms and phrases, identify any other terms or phrases which are synonymous or nearly synonymous, and explain in detail the meaning of each, including explanation of the each term or phrase's relationship to digital advertising generally, and to the extent applicable, each term or phrase's relationship to any of Your products, the inputs to or mechanics of any of Your products, or measurement of evaluation of any outcomes resulting from the operations of Your products:
- a. ACM; Acura; AdECN; Ads Data Hub; Ads Intelligence Hub; AFAP; AFC; AFMA; AFMA; Agave F1; AGPS; Amalgam; Ampersand; AMPLE; ANO; Arcata integration; Aristotle; Audience Centric Management; Authorized Buyers; Autobidding; BART; Bernake; Bernake pool; Big Rocks; BigCluster/Nebula; Biscotti; Biscotti Keyed Serving; Boomerang lists; Buck Beak; CAC/TAC; Chromonolia; CIP; Cloverleaf; Consent Bump; CPD; CPR; Cram; Cramalgam; Cronut; Crumbs; DACH; DAI; DART; DCS Verticals; Defensive Bidding; Demand Product; Demand Syndication; Discovery (O&O bundled campaign; *see, e.g.*, GOOG-TEX-00112098); DoubleClick Data Platform (or "DDP"); Dr. Who; Dremel; DRM; DSO Accounts; DSO Inventory; DT redaction; DV3; DVIP; Dynamic Floor Pricing; Dynamic Price Optimization; Dynamic Reserve Price Optimization; Dynamic Revenue Sharing; Elmo; Enterprise Advertisers; ETC; Exchange of Exchanges; Exchange Syndication; Fastlane; Firebase Conversion; FLD; Flogging process (in relation to AMP); Floodlight; FLPAR; Full Circle; GAIA; GAIA keyed-serving (or "GKS"); GDA; GKS; GPP; GPT tag; GrCN; GreenTea; Grumpy; gTrade; Gwhirl; HMR; Honda; IAP information; IAS ad swapping; ICM Data; Inred; IronMan project; JBP framework; Jedi; Jedi 4 networks (or "J4N"); Jedi Prime; Jordan Deals Matching; Kansas; KIP; L&S; LCS sales channel; Leverage AdjUster for 3PAS; Liverail; Look-alike Modeling; mAFC; Magnolia; MASA; Matador; Matador; Melting Pot; Milhouse; Momiji; MPS sales channel; MRC accreditation; NAL; Narnia ; Narnia 2; Network Bidding; New Homer; New Network; Newfie; Nirmal; Northern Lights; Northstar 1; Northstar 2; NPM; NPM 2.0; One Google; Online tentpoles; OPA; OPG; Optimized Competition; OSO Inventory; P&G; Padawan; PAL signals; PBS SPMs; Pelican; PFBR; PLA; PNG; Poirot; Potassium; ProCraft; Project Airborne; Project Apocalypse; Project Dyna TAC; Project Fidelis; Project Gotham; Project Harmony; Project Hudson; Project Jordan; Project Lincoln; Project Nera; Project OAR; Project Phelps; Project Rey; Project Sandwich; Project Simple; Project Tailor; Project Wayne; Project Yavin; PRPL; p-score; Pubpangaea; QPS; RASCI; RASTA; Rasta; React; Reserve Price Optimization; Revenue Module; RLSA; Rocky III; Safe Frame; SAU; SBS; Scripty; SDF; Simba; Smart Pricing; Sparkles; Superroot; Supply path optimization; Tank; Triton; Truthful DRS (or "tDRS"); TTFCP; TYM; Unity; Universal Auction; Universal Bidding; VAST; VAST AdData; Viral; VMAP; VOLT; VPAID; Walnut; Walnut Pie; Waterloo; Wildfire ; Wonder Twins; xBid; XFP; XFP API; XMA; Yavin Integration; Yoda; YouTube Sparkle; Zoidberg.

128. Separately list all of Your past and present employees, personnel, and/or groups in charge of decision-making, experimenting, testing, analyzing, development of, or implementation of each of the following during the Extended Time Period:
- a. AdX's auction latency requirement
 - b. Google Display Network's Fourth-Party Call restrictions;
 - c. Your policy restricting Advertisers' use of third-party data on Google Search, Gmail, and YouTube;
 - d. the decision to revoke access to Doubleclick ID log-level data;
 - e. the decision to limit or deprecate Third-party cookies in Chrome;
 - f. the decision to restrict contextual data shared via AdX with Advertisers;
 - g. the Dynamic Allocation feature change;
 - h. the feature change allowing AdX to outbid non-Google Ad Exchanges after non-Google Ad Exchanges submitted their bids;
 - i. the Enhanced Dynamic Allocation feature change;
 - j. DFP, AdX, or GAM's support for Header Bidding;
 - k. the decision to support, to limit support, or not support the option for Publishers to use Header Bidding in GAM and AdX;
 - l. the Open Bidding feature change; and
 - m. the Unified Auction feature change.
129. Separately list all of Your current employees, and the title of each, whose primary responsibilities are associated with:
- a. the Publisher Ad Server functionality of GAM (or any other functionality previously associated with DFP before its integration into GAM);
 - b. the Ad Exchange functionality of GAM (or any other functionality previously associated with AdX before its integration into GAM); and
 - c. both the Ad Exchange functionality of GAM (or any other functionality previously associated with AdX before its integration into GAM) and the Publisher Ad Server functionality of GAM (or any other functionality previously associated with DFP before its integration into GAM).
130. List search terms You used to gather documents in response to each civil investigative demand dated January 1, 2019 or later from the United States Department of Justice, including, but not limited to, Civil Investigative Demand Nos. 30092, 30120, and 30121.
131. Identify all Documents relied upon by You in formulating Your answer to each Interrogatory in this CID.

132. Identify, by bates number, each Document or range of Documents produced that correspond to each Request for Documents in this CID.

REQUESTS FOR DOCUMENTS

AdTech Products and Information

1. Produce a Clone of each Source Code Repository related to each of Your past, present, and proposed AdTech Products and AdTech Auction Mechanics.
2. Produce all Documents relating to Your development, maintenance, deployment, use, and/or operation of any past or present AdTech System, including, but not limited to, manuals, presentations, architecture diagrams, product requirement documents, data flow diagrams, programming guides, API references, protocol descriptions, interfaces, declarations, design specifications, launch reports, progress reports, status reports, onboarding materials, and/or training materials.
3. Produce a Clone of each Source Code Repository relating to processing and responding to commands, methods, and requests associated with Google Publisher Tags as described at <https://support.google.com/admanager/answer/181073> (last viewed June 22, 2020).
4. Produce a Clone of each Source Code Repository relating to Your receipt of Ad Requests, including the processing and/or storage of the contents of Ad Requests.
5. Produce a Clone of each Source Code Repository relating to or otherwise effectuating the transmission of messages, information, or data from any of Your past, present, or proposed AdTech Products to any Publisher Ad Server.
6. Produce a Clone of each Source Code Repository relating to the transmission of Bid Requests in response to the receipt of an Ad Request, including Source Code related to the creation, transmission, and storage of such Bid Requests.
7. Produce a Clone of each Source Code Repository relating to the receipt of Bid Responses in response to Bid Requests.
8. Produce a Clone of each Source Code Repository relating to conducting an Ad Auction, including Source Code related to the determination of the winner, storage of information concerning bids, storage of information concerning the winning bidder, and the transmission of information concerning the result of the Ad Auction to others (including Advertisers and Publishers).
9. Produce a Clone of each Source Code Repository relating to dynamic alterations to the conditions or circumstances of an Ad Auction, including but not limited to, Source Code relating to alterations of bid floors, bid weights, and bid time outs.
10. Produce the database configuration (including schemas, procedures, functions, and triggers) for all databases used to store data relating to Ad Requests and their corresponding bids to display ads on web pages.
11. Produce the database configuration (including schemas, procedures, functions, and triggers) for all databases accessed during the process of responding to an Ad Request, including but not limited to, databases containing Behavioral Data concerning the viewer of a web page.
12. Produce a Clone of all Source Code that implements or effectuates Dynamic Allocation, Enhanced Dynamic Allocation, Exchange Bidding, Open Bidding, Unified Auction, Optimized Competition, Floor Pricing, and/or First Look.

13. Produce all Documents addressing any advantages to You or Your AdTech Products arising from Your access to, accumulation of, or use of Behavioral Data.
14. Produce all Documents addressing any advantages to You or Your AdTech Products arising from Your access to, accumulation of, or use of information relating to past bidding behavior of bidders into an Ad Auction You conduct, including, but not limited to, Exchange Bidding and Open Bidding.
15. Produce Documents, including product roadmaps, API documentation, interface documentation, interface specification, code documentation, product architecture schematics, presentations, and other documents from the Extended Time Period that discuss, explain, or otherwise relate to the data You collect about Publishers' websites and profiles of their users. For example, but without limitation, this request pertains to audience profiles for the Publisher's audience, reach, engagement, Publisher profiles, Ad Inventory assessments or evaluations or ratings, Publisher or inventory quality scores, ratings, user or audience demographics, affinities, or other segmentation information or evaluations that You create or maintain about the website users.

AdTech Auction Mechanics

16. Produce all planning documents and communications, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making or analytical Documents relating to Your decision to provide "the minimum bid price to win after the auction closes" (*see* <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/>), including those relating to Your consideration of whether such information could or should be shared with those who bid on an Ad Auction via Header Bidding.
17. Produce all Documents relating to Your process of modifying a winning AdX bid from a second-price auction to compete in a subsequent first-price auction (such as in Open Bidding).
18. Produce all Documents that relate to Your decision to apply Publisher price floors to all programmatic buyers for Publishers participating in Open Bidding as part of the transition to a Unified Auction format.
19. Produce all guides, references, interfaces, specifications, diagrams, or other documentation You provide or have provided to any Open Bidding Partners regarding their interfacing with or participation in Open Bidding. (*See* <https://support.google.com/admanager/answer/7128453?hl=en> (last viewed June 22, 2020)).
20. Produce all Documents, including any Documents from Your Rasta database, evaluating, discussing, or comprising all experiments, tests, analyses, predictions, and other considerations for feature changes to GAM, DFP, and AdX during the Extended Time Period, including but not limited to Your development and implementation of:
 - a. Dynamic Allocation;
 - b. restricting non-Google Ad Exchanges' ability to access Dynamic Allocation before Dynamic Allocation became available to non-Google Ad Exchanges;
 - c. Your decision to allow AdX to outbid non-Google Ad Exchanges after they submitted their bids, as well as Your decision to discontinue this conduct;
 - d. Enhanced Dynamic Allocation;

- e. Your decision not to support the option for Publishers to use Header Bidding in GAM, DFP, and AdX;
- f. Open Bidding or Exchange Bidding;
- g. Your decision to charge a fee to Ad Exchanges who participated in Open Bidding or Exchange Bidding; and
- h. Unified Auction.

Relationships between Products

21. The time period applicable to this request is the Extended Time Period. Produce Documents, including but not limited to product roadmaps, API documentation, interface documentation, interface specification, code documentation, product architecture schematics, and presentations (i) that detail or address the specifications, API documentation, and descriptions of the data transferred or communicated between the following, and/or (ii) that detail or address the functionality and interactions between the following:
- a. DFP and AdX;
 - b. the Ad Server functionality of GAM and the Ad Auction functionality of GAM;
 - c. non-Google Publisher Ad Servers and AdX;
 - d. non-Google SSPs and AdX;
 - e. non-Google Ad Exchanges and DFP or GAM;
 - f. AdSense and AdX or DFP or GAM;
 - g. non-Google Ad Exchanges or Publisher Ad Servers and AdSense;
 - h. Google Ads and AdX or DFP or GAM;
 - i. non-Google DSPs and AdX or DFP or GAM;
 - j. non-Google Ad Exchanges and Google Ads;
 - k. non-Google Publisher Ad Servers and Google Ads;
 - l. DV360 and AdX or DFP or GAM;
 - m. non-Google Ad Exchanges and DV360;
 - n. SA360 and DFP or GAM;
 - o. non-Google Publisher Ad Servers and SA360;
 - p. AdSense and Google Ads;
 - q. non-Google DSPs and AdSense;
 - r. Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite) and AdX or DFP or GAM;

- s. non-Google Ad Exchanges and Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite);
 - t. non-Google advertising analytics tools and AdX or DFP or GAM;
 - u. Chrome and Google Ads or DV360;
 - v. non-Google DSPs and Chrome;
 - w. Chrome and AdX or DFP or GAM; and
 - x. non-Google Ad Exchanges or Publisher Ad Servers and Chrome.
22. Produce any Documents from the Extended Time Period that discuss or otherwise relate to analysis of, measurement of, or decisions related to:
- a. the availability of the Google Display Network on non-Google Ad Exchanges;
 - b. the availability of the Google Display Network on non-Google DSPs;
 - c. Google Ads' ability or inability to interface with non-Google Ad Exchanges;
 - d. YouTube's ability or inability to interface with non-Google Ad Exchanges; and
 - e. YouTube's ability or inability to interface with non-Google DSPs.

Changes to Products and Policies

23. Produce Documents from the Extended Time Period containing or discussing any measurement, analysis, or consideration relating to any of the following:
- a. considered or actual changes to user profiles, super profiles, and other ad targeting criteria used;
 - b. considered or actual changes to conventions or protocols for data sharing with Advertisers and Publishers, including bid data transfer files, and results, output, or impressions data;
 - c. considered or actual changes to the interoperability of Your AdTech Products with any non-Google AdTech Products;
 - d. considered or actual changes to the configuration options available to Publishers in GAM, DFP or AdX;
 - e. considered or actual changes to AdX's auction latency requirements;
 - f. Google Display Network's Fourth-Party Call restrictions (*see* <https://support.google.com/adspolicy/answer/94230?hl=en>) (last viewed June 22, 2020);
 - g. considered or actual changes to Google's policy restricting Advertisers' use of third-party data on Google Search, Gmail, and YouTube;
 - h. Your decision to not provide access to DoubleClick ID log-level data;
 - i. Chrome's treatment of or policies toward Third-Party cookies;
 - j. Your policies or conduct in sharing contextual user data (such as the categories of websites visited by users) via AdX or GAM with Advertisers.

Ad Auction Results

24. Produce data sufficient to show, separately for Google Ads and DV360, on a monthly basis for the period starting January 2016 and until September 2019, the number of Ad Impressions (as an absolute number and as a percentage of the overall impressions made available on AdX or GAM) that Google Ads or DV360 won slightly above the bid submitted from a Header Bidding demand partner, whereby such bid from the Header Bidding demand partner would have otherwise won the impression (the “winning header bidding bid”). For the purposes of this request, “slightly above” means that the difference between the price that Google Ads or DV360 paid and the winning Header Bidding bid does not exceed \$0.10 CPM.
25. Produce data sufficient to show, separately for Google Ads and DV360, on a monthly basis for the period starting October 2019 and until the present on the number of impressions (as an absolute number and as a percentage of the total number of impressions available in the Unified Auction) that Google Ads or DV360 won slightly above the floor price. For the purposes of this request, “slightly above” means that the difference between the price Google Ads or DV360 paid and the floor price does not exceed \$0.10 CPM.

Google Ad Manager

26. Produce all Documents, including any tests, experiments, or simulations, and including any Documents from Your Rasta database, relating to the steps You have taken, and any steps You plan to take, to integrate (or otherwise co-market) Your products formerly known as DFP and AdX together into Your product now known as Google Ad Manager, including all steps relating to any technical, organizational, and personnel changes.
27. Produce all Documents that relate to changing the fees or commissions charged by AdX for conducting an auction of Ad Inventory.
28. Produce all contracts, policies, terms of use, requirements, or other agreements between You and any Open Bidding Partner relating to Open Bidding.
29. Produce all Documents, including any Documents from Your Rasta database, relating to any experiment, analysis, or simulation You have conducted which relate to any of the “number of adjustments to the auction process” (or other “optimizations” to AdX or GAM) which You have made or have considered making (several such adjustments are listed in Your response to the Original TX CID Interrogatory 33).
30. To the extent you answered Interrogatory 25 above in the affirmative, produce all Documents relating to any such considerations, offer(s), and negotiations, including all related internal and external communications.

Header Bidding and Open Bidding

31. Produce all Documents relating to any of Your internal operations groups, employee groups, investigative teams, or task forces which have studied or examined (or are studying or examining) the effects of Header Bidding on any aspect Your business.
32. Produce all Documents relating to the establishment of, operation of, and conclusions drawn by Your Header Bidding Observatory Team.

33. Produce all marketing materials, materials relating to publicity campaigns, and material You provide to any of Your sales teams regarding Header Bidding.
34. Produce all Documents relating to any attempts by any Publisher, SSP, or Publisher Ad network to circumvent GAM's uniform pricing rules.
35. Produce the results of, and any supporting documentation associated with, any simulation or experiment You have conducted or are aware of related to Open Bidding, including but not limited to the experiments referenced in GOOG-TEX-00452550 and including any Documents from Your Rasta database.
36. Produce all Documents relating to Publishers or SSPs using Header Bidding and Open Bidding in combination, the implications of such conduct to You, and any actions You have taken or considered in response.
37. Produce all Documents that compare or relate to comparison of the performance of Open Bidding relative to Header Bidding, including but not limited to, the results of, and any supporting documentation associated with, any simulation or performance experiment related to Open Bidding and Header Bidding, including any Documents from Your Rasta database.
38. Produce all Documents containing or relating to any analysis of the flow of queries running through Header Bidding as compared to Open Bidding, including any analysis conducted by Al Fabrizio.
39. Produce all Documents relating to any attempts by You to solicit any Ad Exchange to become an Open Bidding Partner, and all Documents relating to any independent action You have taken or considered to increase or accelerate the adoption of Open Bidding by other Ad Exchanges.
40. Produce all Documents relating to any attempts by You to solicit any Publisher to participate in Open Bidding, and all Documents relating to any independent action You have taken or considered to increase or accelerate the adoption of Open Bidding by Publishers.
41. Produce all Documents relating to Your evaluation of Open Bidding Partners.
42. Produce all Documents relating to Your decision to remove Last Look for Open Bidding.
43. Produce all Documents, including any Documents from Your Rasta database, relating to any experiment, analysis, or simulation You conducted or are aware of which relates to the impact of Open Bidding on Header Bidding, including but not limited to, any impact on Publisher revenue from the adoption of Header Bidding, the win rate of Header Bidding winners in Open Bidding or against AdX, and the volume of inventory sold through Header Bidding solutions.
44. Produce all Documents relating to your policies concerning multiple Ad Requests for a single ad slot, including any drafts, proposals, or correspondence relating to any changes made to Your multi-call policies.
45. Produce all Documents relating to any advantage or benefit conferred by increased viewability into Advertiser creatives as a result of Open Bidding which was not available to You prior to the introduction of Open Bidding.
46. Produce all Documents relating to Facebook's participation in Open Bidding, including but not limited to, any assistance, cooperation, coordination, or discussion concerning Facebook's participation in Open Bidding.

47. Produce all Documents relating to the negotiation and implementation of the Network Bidding Agreement between You and Facebook.
48. Produce all contracts or agreements between You and Facebook.
49. Produce all Documents relating to any fees You charge to Publishers, SSPs, or Ad Exchanges using Header Bidding that are not charged to Publishers, SSPs, or Ad Exchanges who are not using Header Bidding, or who are Open Bidding Partners or Authorized Buyers.
50. Produce all Documents relating to how You calculate or determine ad serving fees, the circumstances in which You charge ad serving fees, the circumstances in which You do not charge ad serving fees, and the circumstances in which You allow an exception to ad serving fees You would otherwise charge.
51. Produce all Documents relating to how You calculate fees for overly complex data reports and the circumstances in which such fees are charged.
52. Produce any contract between You and any third-party Ad Exchange, SSP, or Publisher that contains any provision that grants You “fair access” or the opportunity to bid on Publisher Ad Inventory sold on their platform.
53. Produce any contract between You and any third-party Ad Exchange, SSP, or Publisher that contains any provision that requires them to make Ad Inventory available through Open Bidding if they also sell that inventory through Header Bidding.

Unified Auction & Unified Pricing Rules

54. Produce all Documents that relate to Your decision to implement Unified Auction and adopt Unified Pricing Rules, including but not limited to, strategy documents, white papers, competitive impact studies, and market analyses preceding that decision as well as those evaluating the impact and performance of Your Ad Tech Products as a result of Your decision.
55. Produce all Documents, including any Documents from Your Rasta database, that relate to any internal tests, experiments, simulations, or studies concerning the performance of third-party DSPs, Ad Networks, indirect line items, Direct sales and Header Bidding as a result of Your decision to move to Unified Auction and adopt Unified Pricing Rules.
56. Produce Documents that relate to any complaints made or concerns expressed by any T-50 Publisher, any T-50 Advertiser, any SSP, any DSP, or Ad Exchange, regarding the Unified Auction process (and/or Your announcement or implementation of Unified Auction), including all such complaints or concerns, any of Your internal discussion relating thereto, and any of Your responses.
57. Produce Documents analyzing or discussing the impact of Unified Auction on non-Google Ad Exchanges, Publishers, and/or Advertisers.
58. With respect to Your decision that publishers “will not be able to join the Bid Data Transfer file with other Ad Manager Data Transfer files” (see <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)), produce:
 - a. all Documents relating to Your decision, including all correspondence and studies underlying or otherwise relating to Your decision, Your evaluation of any alternatives,

and/or any analysis of how the decision may affect or has affected any Publisher or Header Bidding solution;

- b. a representative example of the Bid Data Transfer and other Ad Manager Data Transfer files relating to the sale of a particular Ad Impression won by a bidder participating via Header Bidding which You provided to the Publisher before this change; and
 - c. a representative example of the Bid Data Transfer and other Ad Manager Data Transfer files relating to the sale of a particular Ad Impression won by a bidder participating via Header Bidding which You provided to the Publisher after this change.
- 59. Produce all Documents, including any Documents from Your Rasta database and any internal tests, experiments, simulations, or studies, which relate to Your Decision to introduce a new type of Bid Data Transfer file that contains bidding data from Authorized Buyers and Open Bidding, but which does not contain impression-level data or Header Bidding data.
 - 60. Produce Documents sufficient to show the process by which Publishers can link Your data transfer file with performance data from Header Bidding auctions.
 - 61. Produce Documents sufficient to show any efforts You have made to assist Publishers in comparing their Header Bidding data with the Unified Auction data reporting You provide.
 - 62. Produce all Documents, including any Documents from Your Rasta database and any internal tests, experiments, simulations, or studies, which measure, forecast, predict, study, or research the impact that Your decision to move to a Unified Auction or adopt Unified Pricing Rules would have or has had on the adoption of Header Bidding.
 - 63. Produce any Documents indicating the extent to which Your decision to move to a Unified Auction and adopt Unified Pricing Rules was based on preventing any of Your Demand-Side Products from bidding against one another.
 - 64. Produce all Documents referencing both “Header Bidding” (or any synonymous term or phrase, e.g., “HB”) and “Transfer file” (or any synonymous term or phrase).

Reserve Price Optimization; Dynamic Revenue Sharing; Dynamic Flooring

- 65. Produce Documents relating to any decision by You to restrict the utilization of dynamic price floors to Publishers or transactions who are using AdX.
- 66. Produce all Documents relating to Your determination of the reserve price for an Ad Impression when Reserve Price Optimization (“RPO”) or dynamic floor pricing is enabled, including any Documents relating to the conditions of or results from any experiment or testing You have performed concerning RPO or dynamic floor pricing.
- 67. Produce Documents relating to Your decision to implement Dynamic Revenue Sharing (“DRS”), including any Document relating to analysis of the effect of DRS on Publishers’ revenue, Advertisers’ prices, or Your revenue, and including any Documents relating to the conditions of or results from any experiment(s) or test(s) You ran concerning DRS.
- 68. Produce Documents, including any Documents from Your Rasta database, relating to any studies, tests, analyses, or experiments concerning negative revenue share DRS or bid-oblivious DRS.

69. Produce Document relating to any complaints from any DSP or Advertiser regarding Your use of DRS or RPO, including Your internal discussions of any such complaints and any responses You have made to such complaints.

Demand Side

70. Produce all Documents that relate to Your decision to restrict AdWords or Google Ads Advertisers to purchasing display inventory exclusively from the Google Display Network other than for remarketing purposes.
71. Produce all Documents, including any analysis, experiments, studies, or testing (including A/B testing or other comparative analysis) relating to the default campaign type in AdWords and/or the potential effects of any change or potential change thereto, including any analysis, studies, or testing relating to (or otherwise underlying or informing) Your decision to set the default campaign type in AdWords to include both Google Search Network and Google Display Network, and any effects such setting has had or could have on You or any Publisher, Advertiser, Ad Exchange, DFP, or SSP.
72. Produce all Documents that relate to any decision by You to disclose AdWords and Google Ads log-level bidding data.
73. Produce any Documents that demonstrate how DV360 selects a winning bid from multiple demand sources to before it participates in an AdX auction, Open Bidding auction, or Unified Auction.
74. Produce all Documents that relate to bid shading, bidding algorithms, artificial intelligence, computer programs and applications, or other bidding strategy used by Google Ads or DV360 when bidding into any Ad Exchange, Header Bidding solution, or other auction.
75. Produce Documents that relate to any efforts undertaken, policies implemented, or buying strategies implemented by You to avoid buying Ad Inventory through Header Bidding auctions.

Data Analytics and Verification

76. Produce all Documents relating to Your introduction of private APIs in any of Your AdTech Products or AdTech Auction Mechanics, or for otherwise limiting third-party data usage or portability.
77. Produce all Documents relating to Your efforts to address, track, or combat fraudulent digital ad impressions.
78. Produce all business and planning documents relating to Your consideration of, analysis of, or choice to offer any type of Attribution Model, including any type of Last Touch Attribution.

Revenue/Pricing/Profits

79. Produce all financial audits and audit reports concerning each of Your AdTech Products.

Accelerated Mobile Pages (AMP)

80. Produce all Documents relating to any efforts by any third-party Ad Exchange or SSP to increase the number of demand sources able to bid on Ad Inventory on AMP Pages, including those relating to any efforts based on traditional mediation techniques, Header Bidding, or by any other means.

81. Produce all Documents relating to Your use or imposition of timeout restrictions on Ad Requests relating to ads served on AMP Pages when the ad being served was sold through a Header Bidding solution or through any competing Ad Exchange.
82. Produce all Documents relating to Your restrictions on third-party vendors who provide ad analytics services from interoperating with any of Your AdTech Products or from having access to data relating to ad performance on an AMP Page.
83. Produce all Documents relating to lower monetization of Ad Inventory on AMP Pages compared to their non-AMP Page counterparts on mobile.
84. Produce all Documents relating to lower monetization of Ad Inventory on AMP Pages compared to their non-AMP Page counterparts on desktop.
85. Produce all Documents relating to Your method for preferencing AMP-compliant ads for AMP Pages on AdX or GAM.
86. Produce all experiments, analysis, or reports, including any such Documents from Your Rasta database, relating to Your preferencing of AMP-compliant ads for AMP Pages on AdX or GAM.
87. Produce all Documents relating to the technical feasibility of designing AMP in way that would support Client-Side Header Bidding solutions.
88. Produce all Documents relating to any complaints by any Publisher regarding AMP's lack of support for Client-Side Header Bidding.
89. Produce Documents relating to any efforts You have made to participate in or avoid participation in Client-Side Header Bidding or other open RTB solutions for mobile apps.

YouTube

90. Produce all Documents relating to Your decision to remove from third-party DSPs the ability to bid on any YouTube Ad Inventory.
91. Produce all Documents relating to any communications from DSPs regarding an inability to bid on YouTube inventory.

Chrome

92. Produce all communications between You and any representative or agent of the Digital Advertising Alliance relating to the blocking or potential blocking of third-party cookies on Chrome.

Mobile

93. Produce Documents relating to any of Your policies, actions, or attempts to limit calls into Ad Auctions on GAM, AdX, or AdMob from any non-Google DSPs or Ad Exchanges with respect to Ad Inventory on mobile devices.
94. Produce Documents that relate to any changes to Your bidding algorithms for Ad Inventory on mobile devices to account for circumstances where a Publisher has set a price floor higher than the second price in Your Ad Auction.

95. Produce Documents relating to Your efforts to introduce real-time bidding into the market for mobile Ad Inventory, including but not limited to, Documents relating to the use of Jedi for Networks for this purpose and any Documents studying or analyzing the actual or potential effects that such efforts would have on the adoption of Header Bidding.
96. Produce Documents relating to any restrictions You have instituted to restrict mobile Publishers from mediating with non-Google ad networks.

Google Cloud

97. Produce planning documents, white papers, market analyses, competitive analyses, strategic plans, or other decision-making and analytical documents that relate to how Your AdTech Products or AdTech Auction Mechanics interact with Google Cloud and/or any competing cloud services.
98. Produce all Documents reflecting how any non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server may experience cost savings, increased revenue, technical benefits (including reduced latency), or operational efficiencies when using Google Cloud.
99. Produce planning documents, white papers, market analyses, competitive analyses, strategic plans or other decision-making and analytical Documents that relate to Your marketing of Google Cloud for use in conjunction with any of Your AdTech Products.
100. Produce all communications between You and any Advertiser Ad Server, DSP, Ad Exchange, SSP, or Publisher Ad Server relating to Google Cloud or Your solicitation of their use of Google Cloud.
101. Produce all internal communications regarding Your decisions and strategies with respect to soliciting any Advertiser Ad Server, DSP, Ad Exchange, SSP, or Publisher Ad Server to use Google Cloud.

Material to/from Governmental Entities

102. Concerning Your acquisitions of DoubleClick, AdMob, AdMeld, Invite Media, and Adometry, produce all documents submitted in connection with Items 4(c) and 4(d) of the Hart-Scott-Rodino pre-notification filing forms, and any measurements, analyses, reports, studies, communications or discussions informing or relating to those submissions. The time period applicable to this Interrogatory is from January 1, 2007 to present.
103. Produce all Documents relating to the “initial estimate of the difference” “between what advertisers pay and what publishers receive from Google Ads” which You provided to the UK’s Competition and Markets Authority (see https://assets.publishing.service.gov.uk/media/5dfa0580ed915d0933009761/Interim_report.pdf, at page 202), including all material You submitted in support and all related correspondence. All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the Competition and Markets Authority.
104. Produce all Documents, including all communications, You sent to or received from the UK’s Competition and Markets Authority relating to their Market Study of Online Platforms and Digital Advertising (see https://assets.publishing.service.gov.uk/media/5dfa0580ed915d0933009761/Interim_report.pdf). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the Competition and Markets Authority.

105. Produce all Documents, including answers to interrogatories or written questions, responses to Civil Investigative Demands, subpoenas, correspondence, and all other written material, which You received from or submitted to the House Judiciary Committee relating to its investigation of Online Platforms (see <https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=109793> (last viewed June 22, 2020)). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the House Judiciary Committee.
106. Produce all Documents provided in response to the request for documents You received from the House Judiciary Committee dated September 13, 2019 (see [https://judiciary.house.gov/sites/democrats.judiciary.house.gov/files/documents/alphabet_inc._rfi_-_signed_\(003\).pdf](https://judiciary.house.gov/sites/democrats.judiciary.house.gov/files/documents/alphabet_inc._rfi_-_signed_(003).pdf) (last viewed June 22, 2020)). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the House Judiciary Committee.
107. Produce all correspondence between You and the United States Department of Justice (“DOJ”) in relation to any Civil Investigative Demand from DOJ to You dated January 1, 2019 or later, including but not limited to Civil Investigative Demands 30092, 30120, and 30121.
108. Produce all Documents, including special reports, answers to interrogatories or written questions, voluntary submissions, correspondence, and other written material, which You produced to or received from the United States Federal Trade Commission (“FTC”) in relation to any Order or Special Order issued to You pursuant to the FTC’s authority under Section 6(b) of the Federal Trade Commission Act on or after January 1, 2020. All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the FTC.

Internal Communications Channels

109. Produce all communications sent to, from, or on behalf of each of the Google Groups identified in Appendix A, and each additional Google Group, slack channel, wiki, hangout, and other electronic group messaging system or platform You identified in response to Interrogatories 123-124 above.
110. Produce all Documents owned by or accessible to each of the Google Groups identified in Appendix A, and each additional Google Group, slack channel, wiki, hangout, and other electronic group messaging system or platform You identified in response to Interrogatories 123-124 above.

General

111. Produce all Documents relating to any analysis, including substitution analysis, you have undertaken to assess or evaluate the extent to which the products or services of any other company compete with any of Your AdTech Products.
112. Produce all Documents relating to any analysis you have undertaken to assess or evaluate any indirect network effects between Your Advertiser-facing AdTech Products and Your Publisher-facing AdTech Products.
113. Produce all Documents relating to any analysis you have undertaken to assess or evaluate any barriers to entry and/or barriers to expansion faced by any other company who offers or potentially may offer any product or service in competition with any of Your AdTech Products; for purpose

of this request, “barriers” includes, but is not limited to, switching costs, default biases, information or data asymmetries, and access to inputs or customers.

114. Produce all communications between Google and the Interactive Advertising Bureau (IAB) concerning AMP, Header Bidding, and/or Supply Path Optimization.
115. Produce all Documents You reviewed or consulted in preparing any of Your responses to the Interrogatories in this CID and in the Original TX CID.
116. Produce Documents sufficient to support Your responses to the Interrogatories in this CID and in the Original TX CID.
117. To the extent You have not already done so, Produce all Documents responsive to the Requests for Documents in the Original TX CID in native format as specified in Exhibit B and in Instruction 3.A.C.a.
118. Produce Documents responsive to the Requests for Documents in this CID and in the Original TX CID which were or are associated with or created, held, or maintained by any of the Google Groups listed in Appendix A and/or any of the custodians listed in Appendix B. For purposes of clarity, neither this request nor Appendices A and B are intended to limit in any way the Google Groups and custodians from whom You must produce in response to this or any other CID; Your production must include all responsive non-privileged Documents from all of those Google Groups and custodians, as well as from all other sources in Your possession, custody, or control.
119. Produce all Documents, including all correspondence, sent to or from Sundar Pichai, Sergey Brin, and/or Larry Page which contain the phrase “Header Bidding” (or any synonymous term or phrase, e.g., “HB”).
120. Produce all Documents containing any of the following terms or phrases (or synonyms of any of the following terms or phrases):
 - a. Ads Data Hub; Ads Intelligence Hub; Authorized Buyers; Bernake; Demand Syndication; Dynamic Floor Pricing; Dynamic Price Optimization; Dynamic Reserve Price Optimization; Dynamic Revenue Sharing; Jedi; Jedi 4 networks (or “J4N”); Jedi Prime; Narnia; Narnia 2; Network Bidding; New Network; Optimized Competition; Project Yavin; Reserve Price Optimization; Supply path optimization; Truthful DRS (or “tDRS”).

APPENDIX A**Google Groups**

a4a-cam
a4a-discuss
admob-jedi
ads-auction
adwords-amp
adwords-amp-xfn
adx-auction
adx-buyside
adx-buyside-all
adx-buyside-comms
adx-call-reports
adx-comm
adx-drs
adx-dynamic-price
adx-pm
adx-sellside-all
amalgam-team
amalgam-core-leads
amalgam-leads
amalgam-steering
americas-mweb-community
amp-a4a-eng
amp-ads-analysis
amp-ads-analytics-eng
amp-ads-comms
amp-ads-integration
amp-adwords-discuss
amp-ais-wg
amp-analytics-internal
amp-api-eng
amp-buyside-eng
amp-core-leadership
amp-CURLS
amp-curlsv2
amp-dashboard-users
amp-data
ampersand
ampersand-metrics
ampersand-updates
amp-global
amp-harmony
amphtml-all
amphtml-core-eng
amphtml-core-pm
amphtml-discuss
amphtml-eng
amphtml-eng-github
amphtml-escalations

amphtml-outreach
amphtml-pm
amphtml-prod
amphtml-validation
amp-indexing-team
amp-ptms
amp-rev
amp-search
amp-tech-support
amp-viewer
amp-viewer-eng
amp-webresults
aog-amp-actions
auctions
bid-landscapes
bidmanager-all
bidmanager-docs
bidmanager-eng
bidmanager-leads
bidmanager-pm
bidmanager-team
btc-eng
cronut
cronut-core
dev-partners-gtm-amp
drx-all
drx-all
drx-amp
drx-amp-eng
drx-core-pm
drx-documentation
drx-eng-mgrs
drx-jedi
drx-jedi-eng
drx-notes
drx-pgm
drx-pm
exchange-buy-side-all
google-ad-exchange-eng
gtech-partners-amp
hbobservatory
integration-gpp
jedi-beta
jedi-buy
jedi-comms
jedi-pricing
jedi-tiger-team
modena
modena-volt
open-bidder
popfeeds-eng

pricing
project-magnolia
project-rey
pub-tags-team
rev-team
sc-amp
sell-performance
shopping-amp
stories-amp
stream-eng

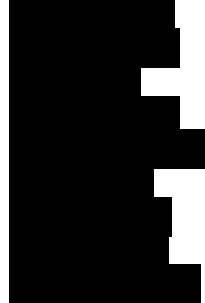
APPENDIX B**Custodians**

Jonathan Bellack

Brad Bender



Sam Cox



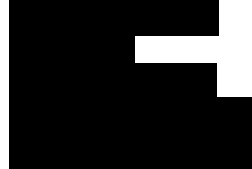
Nitish Korula

Chris LaSala

Neal Mohan



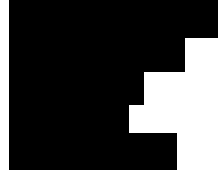
Aparna Pappu



Philipp Schindler



Scott Spencer



Susan Wojcicki



Sergey Brin



[REDACTED]

Sundar Pichai

[REDACTED]

[REDACTED]

Per Bjoke

[REDACTED]

Kent Walker

[REDACTED]

[REDACTED]

Nirmal Jayaram

[REDACTED]

Woojin Kim

[REDACTED]

[REDACTED]

George Levitte

[REDACTED]

Eisar Lipkowitz

[REDACTED]

[REDACTED]
n

EXHIBIT A

CERTIFICATE

STATE OF _____

COUNTY OF _____

_____, being duly sworn upon his/her oath states:

I am a representative of Alphabet Inc. and have knowledge of the facts and circumstances relating to the preparation of the answers to the interrogatories in this civil investigative demand. All of the requested information in the possession, custody, control, or knowledge of Alphabet Inc. has been set forth fully and accurately in the answers to interrogatories. I have knowledge of the facts and circumstances relating to the production of material in response to the requests for documents in this civil investigative demand. All of the requested material in the possession, custody, or control of Alphabet Inc. has been produced.

Title: _____

SUBSCRIBED and SWORN TO BEFORE ME this ____ day of _____, 2019.

NOTARY PUBLIC IN AND FOR THE
STATE OF _____

EXHIBIT B

SPECIFICATIONS FOR ELECTRONIC DOCUMENT PRODUCTION

DATA DELIVERY PRODUCTION REQUIREMENTS

Prior to any production, a meeting with the Antitrust Division is required to discuss the location of any potentially relevant Electronically Stored Information (ESI) – to include discussing E-mail, Network Shares, Local Storage, Databases, Mobile Devices, the Cloud, Chat Applications, and Social Networking.

This document describes the standard specifications and procedures for making an image-based production to the Antitrust Division of the Office of the Attorney General of Texas (“OAG”) in the form of Load Files.

- To ensure the efficient processing and review of any electronic production, legal, technical, and economic OAG staff need to resolve the details prior to production, and preferably before you or your vendor begin to gather and process responsive documents.
- Care should be taken to ensure that all responsive data and metadata are preserved in the collection process.
- These are not Unicode compliant specifications and do not cover production of translations.
 - Please contact OAG staff if either of these is anticipated.

I. Categories of Documents

Discussion regarding the details of an electronic production should focus on seven categories of documents:

- A. Email and other electronic messages (e.g. instant messaging and chat applications)
- B. Other electronic documents
- C. Hard copy documents
- D. Shared resources
- E. Databases
- F. Audio and video data
- G. Foreign language materials

General requirements for each category of document are outlined below. For information regarding document-specific metadata and bibliographic information, please refer to the enclosed Metadata Table of Requested Fields.

II. General Instructions for Productions

To ensure the efficient processing and review of any electronic production, contact the OAG before you or your vendor begin to gather and process responsive documents.

- A. A cover letter should be included with each production of data. The following information should be included in the letter:
 - 1. List of each piece of media (hard drive, thumb drive, DVD or CD) included in the production by the unique number assigned to it, and readily apparent on the physical media.

2. List of custodians, identifying:
 - a. The Bates range (and any gaps therein) for each custodian
 - b. Total number of records for each custodian
 - c. Total number of images for each custodian
 - d. Total number of native files for each custodian
3. List of fields in the order in which they are listed in the data file
4. Time zone in which emails were standardized during conversion (email collections only)
5. Label all media with the following:
 - a. Case number, if applicable; if in response to an ID, the number of the ID
 - b. Volume Name
 - c. Production date
 - d. Bates range
 - e. Disk number (1 of X), if applicable
- B. Documents created or stored electronically **MUST** be produced in their original electronic format, not printed to paper or PDF.
- C. Data should be produced using whichever media requires the least number of deliverables.
- D. Organize productions by custodian, unless otherwise instructed. All documents from an individual custodian should be confined to a single load file.
- E. All productions should be checked and produced free of computer viruses.
- F. All produced media should be encrypted.
- G. Password-Protected Files: to the extent any produced documents are password-protected, the Producing Party must either unlock the document prior to production or provide passwords in order to allow access by the Receiving Party. If the Producing Party is unable to process a document because of unknown passwords or encryption, the Parties shall meet and confer to determine the appropriate steps to take with respect to such document.
- H. Production load files may also be electronically submitted via the internet (*e.g.*, file share sites, FTP) Load Files in excess of 5GB should be discussed with the OAG in advance of submission.

III. Categories of Documents

A. Email, Attachments, and Other Electronic Messages

Email and other electronic messages (*e.g.*, instant messages (IMs)) should be produced as image files with related searchable text, metadata and bibliographic information. Depending on

how the company's systems represent names in email messages or IMs, a table of names or contact lists from custodians may be required.

Email repositories, also known as email databases (*e.g.*, Outlook .PST, Lotus .NSF), can contain a variety of items, including messages, calendars, contacts, tasks, etc. For purposes of production, responsive items should include the "Email" metadata/database fields outlined in the Metadata Table, including but not limited to, all parent items (mail, calendar, contacts, tasks, notes, etc.) and child files (attachments of files to email or other items), with the parent/child relationship preserved. Similar items found and collected outside an email repository (*e.g.*, .MSG, .EML, .HTM, .MHT) should be produced in the same manner.

Each IM conversation should be produced as one document.

Outlook (.PST) and Lotus Notes (.NSF) email files may be produced in native file format. Production of these native files should be discussed in advance with the OAG.

Electronic phone records should be discussed with the OAG in advance of production to determine the optimal format of production.

B. Other Electronic Documents

Electronic documents include word-processing documents, spreadsheets, presentations, and all other electronic documents not specifically discussed elsewhere. These documents should be produced as image files with related extracted text, metadata and bibliographic information and links to the original native file. All passwords and encryption must be removed from electronic documents prior to production. The native file documents should be named per the BEGBATES#.

Refer to the Metadata Table of Requested fields for required metadata fields.

1. The following are examples of file types that should be produced in their native formats¹:
 - a. Word document, such as .DOC and DOCX
 - b. Excel spreadsheets, such as .XLS and XLSX.
 - c. PowerPoint presentations, such as .PPT and .PPTX
 - d. Microsoft Access databases, such as .MDB and .ACCDB
 - e. WordPerfect documents, such as .WPD
 - f. Adobe Acrobat documents, such as .PDF

¹ The listed extensions are merely common examples of file extensions associated with those formats and are not to be construed as limitations. In other words, Word documents with extensions other than .DOC and .DOCX should also be produced in native format.

2. Spreadsheets

Spreadsheets should be produced in native format (*e.g.*, as .XLSX files), with extracted text for the entire document, metadata, and bibliographic information. Provide a single placeholder image of the spreadsheet. The placeholder image must contain at a minimum the BEGDOC#, FILENAME, and FILEPATH. The Bates range for a spreadsheet should be a single number (*e.g.*, ABC-JD-00000001 – ABC-JD-00000001). The linked native file name should match the BEGDOC# with the appropriate file extension.

3. Presentations

Presentations should be produced in full slide image format along with speaker notes (which should follow the full images of the slides) with related extracted text, metadata, and bibliographic information. Presentations should also be produced in native format (*e.g.*, as .PPT files). The linked native file name should match the BEGDOC#, FILENAME, and FILEPATH.

4. Hidden Text

All hidden text (*e.g.*, track changes, hidden columns, hidden slides, mark-ups, notes) shall be expanded and rendered in the extracted text file and associated image file.

5. Embedded Files

All embedded objects (*e.g.*, graphical files, Word documents, Excel spreadsheets, .wav files) that are found within an electronic document shall be produced so as to maintain the integrity of the source document as a single document. For purposes of production, the embedded files shall remain embedded as part of the original source document. Internal documents that are embedded or referenced via hyperlinks and hyperlinked shared resources must be produced as separate, attached documents following the instructions in this appendix.

6. Image-Only Files

All image-only files (non-searchable PDFs, multi-page TIFFs, Snipping Tool screenshots, etc., as well as all other images that contain text) shall be produced with associated OCR text, metadata, and identifying information. Each production shall state the number of image-only files and non-imaged files produced.

7. Archive File Types

Archive file types (*e.g.*, .zip, .rar) must be uncompressed for processing. Each file contained within an archive file should be produced as a child to the parent archive file. If the archive file is itself an attachment, that parent/child relationship must also be preserved.

8. Other File Types and Non-PC or Non-Windows Based Systems

Other file types, such as those generated by financial or graphic design software, or file types from non-PC or non-Windows based systems (*e.g.*, Apple, UNIX, LINUX systems), should be discussed with the OAG in advance of production to determine the optimal format of production.

C. Hard-Copy Documents

Hard-copy documents (*e.g.*, documents ordinarily maintained in paper) are to be produced as black-and-white image files, except where noted below, with related searchable OCR text and identifying information. Special attention should be paid to ensure that hard-copy documents are produced as they are kept, reflecting attachment relationships between documents and information about the file folders within which each document is found. In addition, multi-page documents must be produced as single documents (*i.e.*, properly unitized) and not as several single-page documents. Where color is required to interpret the document, such as hard copy photos, and certain charts, its image **MUST** be produced in color. These color images are to be produced as JPEG format. Hard-copy photographs should be produced as color JPEGs, if originally in color, or grayscale TIFF files if originally in black-and-white.

D. Shared Resources

Shared Resources should be produced as separate custodians if responsive custodians have access to them or if they contain responsive documents. The name of the group having access would be used as the custodian name, *i.e.* Marketing Execs or Accounting Dept. The company will separately provide a brief description of each shared resource that includes a list of the custodians who have access to that shared resource.

E. Database Productions

Production of enterprise databases are not addressed in these specifications and must be discussed with the appropriate legal and technical staff to determine the optimal production format; these will usually fall outside the scope of an image-based production. Care must be taken to ensure that all responsive databases and their metadata are preserved.

F. Audio and Video Data

Audio and video file types not specifically discussed elsewhere should be discussed with the OAG in advance of production to determine the optimal format of production.

G. Foreign Language Materials

Production of Foreign Language Materials not addressed in these specifications must be discussed with the appropriate legal and technical staff to determine the optimal production format prior to production.

IV. Processing

A. De-Duplication

Before doing any de-duplication, provide the OAG with a written description of the method that will be used to de-duplicate (including which elements are compared and what hash codes are used), and what is considered a duplicate. Then confirm that your approach is acceptable to the OAG. De-duplication of hard-copy documents, or that of “loose” electronic documents (*e.g.*, presentation slides located on the custodian’s C: drive) against email attachment versions of those same documents, is unacceptable. The integrity of any produced email and any related “document family” must be maintained except as limited by any claim of privilege. De-duplication should occur both vertically within each custodian and horizontally across

custodians. Vertical de-duplication is crucial when a production includes electronic documents from back-ups. Horizontal de-duplication must be done in a way that preserves (and produces) information on blind copy (Bcc) recipients of emails and other custodians whose files contain the duplicates that will be eliminated from the production.

A Custodian Append File is to be produced when de-duplicating ACROSS custodians (*i.e.*, horizontal de-duplication) and data is produced on a rolling basis. The file must be provided on an incremental basis **starting with the second submission**; as more custodians are discovered for previously produced documents, this file is updated with **only the new** custodian information.

The Custodian Append File is a two-field delimited file consisting of the BEGDOC#s of the previously delivered document and the **new** custodian names for the duplicates of those records that would otherwise have been produced in the subsequent (new) submissions.

These specifications do not allow for near de-duplication or email threading. These formats must be discussed separately with the OAG and consent obtained prior to the use of such techniques for production.

B. Document Numbering

Documents must be uniquely and sequentially Bates-numbered across the entire production, with an endorsement burned into each image. Each Bates number shall be of a consistent length, include leading zeros in the number, and unique for each produced page. Bates numbers should contain **no more** than three segments. For example, a company identifier, a middle segment identifying the custodian, and a sequential page counter with connecting hyphens. The number of digits in the numeric portion of the format should not change in subsequent productions, nor should spaces, hyphens, or other separators be added or deleted. Under no circumstances should bates numbers contain embedded spaces, slashes (/), backslashes (\), carats (^), ampersands (&), hash marks (#), plus signs (+), percent signs (%), dollar signs (\$), exclamation marks (!), pipes (|), any character used as a delimiter in the metadata load files, or any character not allowed in Windows file-naming convention (, \ / : * ? " < > | ~ @ ^). Bates numbers may contain hyphens (-).

C. Privilege Designations

Documents redacted pursuant to any claim of privilege will be designated "Redacted" in the SPECPROPERTIES field as described in the Metadata Table. Appropriately redacted searchable text (OCR of the redacted images is acceptable), metadata, and bibliographic information must also be provided. All documents that are part of a document family that includes a document withheld pursuant to any claim of privilege will be designated "Family Member of Privileged Doc" in the SPECPROPERTIES field as described in the Metadata Fields table for all other documents in its family. Placeholder images with BEGDOC#, FILENAME, FILEPATH and reason withheld (*e.g.*, "Privileged") should be provided in place of the document images of the privileged document.

**IMAGE AND TEXT FILE SPECIFICATIONS,
AND LOAD FILE CONFIGURATION**

I. Load File Configuration

- Each production must have a unique VOLUMENAME (e.g., TXAG_VOL001)
- The VOLUMENAME should increase sequentially with each subsequent production (e.g., TXAG_VOL001, TXAG_VOL002, etc.)
- Under the VOLUMENAME folder, the production should be organized into 4 subfolders:
 - DATA (should contain metadata, DAT, OPT, custodian append, etc. files)
 - IMAGES (may contain subfolders, with no more than 5,000 images per folder)
 - NATIVES (may contain subfolders, containing linked native files, with no more than 5,000 files per folder)
 - TEXT (may contain subfolders, with document-level text files)

II. Image/Native File Specifications

- Black-and-white Group IV Single-Page TIFFs (300 DPI). Color images should be provided in .jpg format when color is necessary.
- Image file names should match the page identifier for that specific image and end with the .tif (or .jpg if needed) extension.
 - Example: ACME-ABC-0003072.TIF
- File names cannot have embedded spaces, commas, ampersands, slashes, back slashes, hash marks, plus signs, percent signs, exclamation marks, any character used as a delimiter in the metadata load files, or any character not allowed in Windows file-naming convention. (, & \ / # + % ! : * ? “ < > | ~ @ ^)
- Images for a given document must reside together in the same folder.
- The maximum number of image files should be limited to 5,000 per folder.
- Native file names should match the BEGDOC entry for that specific record and end with the appropriate file extension.
- The maximum number of native files in a subfolder should be limited to 5,000 per folder.
- Any encryption or password protection will be removed from all native format files produced.

III. Extracted or Searchable Text File Specifications and Control List Configuration

- Extracted text, as opposed to OCR, must be provided with all records, except for documents that originated as hard copy or redacted documents.
 - For hard copy documents, provide OCR text.
 - For redacted documents, provide OCR text for the redacted version.
- There should be a single extracted/OCR text file per document, in ASCII Text format only.
- The name of the text file should be the same as the document's first page/Bates number, with a TXT extension: BEGDOC#.TXT.
- There must be a carriage return and line feed (CRLF) no later than the 250th character of the first line of every text file.

- All soft and hard returns in the native electronic or image file should be replicated as a Carriage Return Line Feed (CRLF) in the text file (i.e. the lines of text in the file terminate with a CRLF in correlation with the appearance of the native electronic or rendered image file). Pay particular attention to not allow multi-line paragraphs of e-mails to be rendered as a single, extended line of text.
- Text files should include page breaks that correspond to the “pagination” of the image files. Place text files under a “TEXT” folder and provide a Control List file for loading in the “DATA” folder on the delivery media.

IV. Image Load File (.opt) Configuration

- Page level comma-delimited file containing seven fields per line.
 - PageID,VolumeLabel,ImageFilePath,DocumentBreak,FolderBreak,BoxBreak,PageCount
 - PageID – PageID of the item being loaded. MUST be identical to the image name (less the file extension).
 - VolumeLabel – Optional. If used it is preferable that it match the VOLUMENAME assigned in the corresponding metadata load file.
 - ImageFilePath – The path to the image from the root of the delivery media.
 - DocumentBreak – The letter “Y” denotes the first page of a document. If this field is blank the page is not the first page of a document.
 - FolderBreak – Leave empty
 - BoxBreak – Leave empty
 - PageCount – Optional
- Example - ABC-JD00030005,,\ABC002\Images\001\ ABC-JD-00030005.tif,Y,,

V. Metadata Load File Delimiters and Configuration

- Field Separator ¶ (ASCII 020)
- Text Qualifier p (ASCII 254)
- Substitute Carriage Return or New Line in data ® (ASCII 174)
- Multi-value separator (Do Not Follow with Space) ; (ASCII 059)
- Date format YYYYMMDD (date type fields only)
- Time format HH:MM:SS in 24-hour format (e.g., 04:32 pm formatted to 16:32:00 – Do not include AM, PM, or Timezone² indicators).
- There should be one line for every record in the load file. A carriage return and line feed (CRLF) must appear at the end of each record and ONLY at the end of each record.
- The first row of each metadata load file should be a header row containing the field names. Field names must match OAG Metadata Table field names.
- All requested fields should be present in the metadata load file whether data exists or not. Field order must remain consistent in subsequent productions.

² Note that Timezone information is still required in a different metadata field.

VI. METADATA TABLE OF REQUESTED FIELDS

Field Name	Field Description	Field Type
VOLUMENAME	Production volume number (e.g., ABC001-001)	Note Text
BEGDOC	Start Bates (including prefix) -- No spaces or special characters	Note Text
ENDDOC	End Bates (including prefix) - No spaces or special characters	Note Text
ATTACHRANGE	Range of the BEGDOC value of the parent record to the ENDDOC value (including prefix) of the last child record (for example, ABC-JD-00001201 ABC-JD-00001220); populated for all documents in the group. Empty if the record is NOT in family grouping	Note Text
BEGATTACH	Starting Bates of attachment range	Note Text
ENDATTACH	Ending Bates of attachment range	Note Text
PARENTBATES	Parent record's BEGDOC#, including prefix (populated ONLY in child records)	Note Text
CHILDBATES	Child document list: BEGDOC# of each child, separated by semicolons [:] (populated ONLY in parent records)	Multi-Entry
NUMPAGES	Page count	Integer
SPECPROPERTIES	Indicate all that apply : Record Type: E-Doc, E-Doc Attachment, Email, Email Attachment, Hard Copy, Calendar Appt Other Notations: Translation of [DOCID of original], Translated as [DOCID of Translation] Privilege Notations: Redacted, Privileged, Family Member of Priv Doc	Multi-Entry
CUSTODIAN	Custodian(s) / source(s) - format: Last, First or ABC Dept	Multi-Entry
TIMEZONE	The TimeZone from which the native file was collected.	Note Text
FROM	Author of the Email or Calendar item (as formatted on the original)	Note Text
TO	Recipients of the Email (as formatted on the original)	Multi-Entry
CC	Names of the individuals who were copied on the Email (as formatted on the original)	Multi-Entry
BCC	Names of the individuals who were blind-copied on the Email (as formatted on the original)	Multi-Entry
SUBJECT	Email, document, or calendar subject	Note Text
DATESENT	Date the Email was sent. Format: YYYYMMDD.	Date

Field Name	Field Description	Field Type
TIMESENT	Time Email was sent -- Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; time zone indicators cannot be included)	Time
DATERECEIVED	Date Email was received. Format: YYYYMMDD.	Date
TIMERECEIVED	Time Email was received. Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; time zone indicators cannot be included)	Time
HEADER	The internet header information for Email sent through the internet;	Note Text
INTERNETMSGID	Globally unique identifier for a message which typically includes messageid and a domain name. Example: <0E6648D558F338179524D555@m1p.innovy.net	Note Text
MESSAGEID	Proprietary email database/mailstore/post office file associated with centrally managed enterprise email servers. Microsoft Outlook PST EntryID, the UniqueID (UNID) for Lotus Notes, equivalent value for other proprietary mailstore formats.	Note Text
CONVERSATIONINDEX	Email Thread Identification	Note Text
IMPORTANCE	Email flag indicating priority level set for message	Note Text
DATECREATED	Date electronic file was created. Format: YYYYMMDD.	Date
REVISION	Revision number extracted from metadata of electronic documents	Note Text
DATESAVED	Date native file was last modified. Format: YYYYMMDD.	Date
ORGANIZATION	Company field extracted from the metadata of an electronic document	Note Text
KEYWORDS	List of keywords, tags, and categories extracted from the metadata of an electronic document	
AUTHOR	Author field value extracted from the metadata of a native file	Note Text
MODIFIED	Last Modified as	
SPEC#	Subpoena/request paragraph number to which the document is responsive	Multi-Entry
SEARCHVALUES	List of search terms used to identify record as responsive (if used)	Multi-Entry
HASHMD5	Document MD5 hash value (used for de-duplication or other processing) NOTE: only one hash value metadata field need be provided—either MD5 hash or SHA1 hash.	Note Text
HASHSHA	Document SHA1 hash value (used for de-duplication or other processing) NOTE: only one hash value metadata field need be provided—either MD5 hash or SHA1 hash.	Note Text

Field Name	Field Description	Field Type
FILESIZE	File size in Bytes (integer value only - do not include unit of measure or decimal places - e.g., 568)	Integer
FILENAME	File name of electronic document with the file extension (e.g., Re: tomorrow sounds fun.eml; Read this today.docx)	Note Text
APPLICATION	Application used to create electronic document (e.g., Excel, Outlook, Word) as reflected in metadata	Note Text
FILEEXTENSION	File extension of electronic document (e.g., .eml, .msg, .xlsx)	Fixed Length 5 chars
FOLDERLABEL	Email folder path (sample: Inbox\Active); or Hard Copy folder/binder title/label	Note Text
FILEPATH	File path to electronic document as it existed in its original environment	Note Text
NATIVELINK	File path location to the current native file location on the delivery medium	Note Text

EXHIBIT C

Exhibit C**Google Groups**

a4a-cam
a4a-discuss
ad-exchange-eng
admob-jedi
ads-auction
adsense-eng
aswords-all
adwords-amp
adwords-amp-xfn
adwords-bidding
adwords-bidding-eng
adwords-displayads-eng
adx-auction
adxbuyer-comms
adx-buyer-tiger-team
adx-buyside
adx-buyside-all
adx-buyside-comms
adx-buyside-comms-questions
adx-buyside-commz-core
adx-buyside-mobile
adx-buyside-sales
adx-call-reports
adx-comm
adx-dfp-questions
adx-drs
adx-dynamic-price
adx-eng
adx-openrtb
adx-openrtb-eng
adx-openrtb-questions
adx-pm
adx-sellside-all
adx-sellside-fe-eng
adx-services
adx-questions
adx-xfp-eng
adx-xfp-verification
adx-xfp-verification-eng
adxsales
amalgam-team
amalgam-core-leads
amalgam-leads
amalgam-steering
americas-mweb-community
amp-a4a-eng

amp-ads-analysis
amp-ads-analytics-eng
amp-ads-comms
amp-ads-integration
amp-adwords-discuss
amp-ais-wg
amp-analytics-internal
amp-api-eng
amp-buyside-eng
amp-core-leadership
amp-coreteam
amp-CURLS
amp-curlsv2
amp-dashboard-users
amp-data
ampersand
ampersand-metrics
ampersand-updates
amp-global
amp-harmony
amphtml-all
amphtml-core-eng
amphtml-core-pm
amphtml-discuss
amphtml-eng
amphtml-eng-github
amphtml-escalations
amphtml-outreach
amphtml-pm
amphtml-prod
amphtml-validation
amp-indexing-team
amp-og
amp-partnerships
amp-ptms
amp-rev
amp-search
amp-tech-support
amp-viewer
amp-viewer-eng
amp-webresults
aog-amp-actions
auctions
awbid
awbid-commercialization
awbid-commz

awbid-eng
awbid-smarttrb
beyondtheclick
bfm
bfm-announce
bfm-core
bfm-display
bfm-programmaticbid-landscapes
bidder-frontend-eng
bidmanager-all
bidmanager-docs
bidmanager-eng
bidmanager-leads
bidmanager-pm
bidmanager-team
btc-eng
buyside-policy-contracts
competitors
cronut
cronut-core
dbm-exchanges-integration
dbm-schema-council
dlck-dfp5redteam
dclk-dfpquestions
dclk-internalnotes
deal_review
demand
dev-partners-gtm-amp
dfpall
dfp-internalnotes
dfp-questions
display-gdn-launch-notify
display-meetingnotes
display-buyside-pm
drx-all
drx-amp
drx-amp-eng
drx-announce
drx-bow
drx-buyside-eng
drx-buyside-pm
drx-comms-docs
drx-core-pm
drx-deal-serving
drx-designdoc
drx-documentation
drx-eng
drx-eng-five
drx-eng-mgrs
drx-experiments
drx-fe-buyside-eng

drx-fe-eng
drx-fe-latency-police
drx-fe-latency-report
drx-fe-yield-eng
drx-gaia
drx-gaia-reporting
drx-gaia-serving
drx-head-app-steering
drx-identity-eng
drx-indirect
drx-indirect-commercialization
drx-indirect-eng
drx-jedi
drx-jedi-eng
drx-launch-approvers
drx-limits-council
drx-mediation-detection
drx-mobile-eng
drx-mobile-serving
drx-nera
drx-notes
drx-pgm
drx-prds
drx-pm
drx-reporting
drx-reporting-backend-team
drx-rtb-nyc
drx-serving
drx-suite-commercialization
drx-tiger-team
drx-unification
drx-unification-comms
drx-ux
dv3-pm
dv3-eng
dv360-custom-bidding
dv360-exchange-intergration
ebay-internal-pbs
ebay-internal-tams
exchange-buy-side-all
gbx-all
gbx-leads
gdn-communications
gdn-core
gdn-leads
gdn-meetingnotes
gdn-meeting-notes
gdn-performance-pm
gdn-pm
gdn-steering-core
gdn-steering-meeting

gdn-steering-notes
gfp-servinggoogle-ad-exchange
google-ad-exchange-eng
gpt-eng
gpt-pod
gtech-exchange
gtech-partners-amp
hbobservatory
integration-grp
jedi-beta
jedi-blue-core
jedi-blue-data-access
jedi-buy
jedi-comms
jedi-deals
jedi-discrepancies
jedi-knights
jedi-meetingnotes
jedi-pricing
jedi-tiger-team
jedi-whale-payments
linkedin-adxbuyside
modena
modena-volt
monetization-pm
open-bidder
open-bidder-eng
opg-global-dfp
popfeeds-eng
pricing
project-magnolia
project-rey
pub-tags-team
publisher-policy-contracts
rev
rev-team
revforce
revforce-core
revforce-mtg
rewarded-demand-dev
rewarded-demand-updates
rtb-eng
rtb-open-bidding
rtb-questions
sc-amp
sell-performance
sell-side-gsl
sell-side-leads
sell-side-update
sellside-experiment-approvers
sellside-gsl-leads

sellside-launch-approvers
sellside-pm
sellside-review-attendees
sellside-ux
shopping-amp
skyray-bidding
skyray-bidding-eng
stories-amp
stream-eng
xbid-eng
xbid-eng-leads
xbid-eng-code-review
xbid-intel-team
xbid-grp
xbid-serving
xfp-announce
xfp-api
xfp-api-cr
xfp-api-eng
xfp-commercialization
xfp-deep-thoughts
xfp-engprod
xfp-exec-updates-global
xfp-exec-updates-na
xfp-discuss
xfp-eng
xfp-fe-core
xfp-fe-eng
xfp-fe-prod
xfp-leads
xfp-managers
xfp-notes
xfp-pm
xfp-revenue
xfp-schema
xfp-schema-council
xfp-serving-engprod
xfp-serving-notes
xfp-serving-ny
xfp-serving-releases
xfp-serving-reviews
xfp-tech
xfp-ux
xfp-writers
xfp-xfunctional-status-na
xfp-ym
xfp-ym-cr
xfp-ym-eng
yavin-core
yavin-steering

EXHIBIT B



KEN PAXTON
ATTORNEY GENERAL OF TEXAS

CIVIL INVESTIGATIVE DEMAND

To: Alphabet Inc.
c/o Paul Yetter
811 Main Street
Suite 4100
Houston, TX 77002
713.632.8000
pyetter@yettercoleman.com

The Office of the Attorney General of Texas ("OAG") is investigating anticompetitive conduct in markets relating to online advertising, online search, and mobile operating systems in Texas and the rest of the United States. Such activity may violate Section 15.05(b) of the Texas Free Enterprise and Antitrust Act of 1983, Tex. Bus. & Com. Code § 15.01 *et seq.* (the "Act").

The OAG has reason to believe that you may have information and/or material relevant to its investigation and is therefore issuing you this Civil Investigative Demand ("CID") pursuant to Section 15.10 of the Act. Please review the following instructions and definitions carefully before responding to this CID. The documents you submit must be produced under a sworn certificate in the form attached as Exhibit A. Your response should be submitted **on or before July 22, 2020** to Assistant Attorney General David M. Ashton, Antitrust Division, Texas Office of the Attorney General, 300 W. 15th Street, 7th Floor, Austin, Texas 78701 or, if delivered by mail, at P.O. Box 12548, Austin, Texas 78711.

Section 15.10(i)(5) of the Act governs OAG's treatment of documents designated as containing trade secrets or confidential information. You should clearly designate documents or portions thereof, if any, that contain trade secrets or confidential information.

NOTICE

Any person who, with intent to avoid, evade, or prevent compliance, in whole or in part, with a CID, removes from any place, conceals, withholds, destroys, mutilates, alters, or by any other means falsifies any documentary material, or otherwise provides inaccurate information, is guilty of a misdemeanor which, on conviction, is punishable by a fine of not more than \$5,000, or by confinement in county jail for not more than one year, or both. Objections to this demand may be made in accordance with Section 15.10 of the Act.

Issued on June 22, 2020.

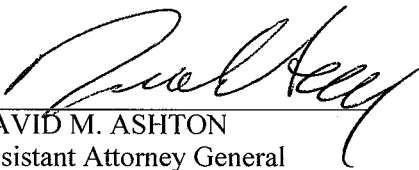
KEN PAXTON
Attorney General of Texas

JEFFREY C. MATEER
First Assistant Attorney General

RYAN BANGERT
Deputy First Assistant Attorney General

DARREN McCARTY
Deputy Attorney General for Civil Litigation

KIM VAN WINKLE
Chief, Antitrust Division

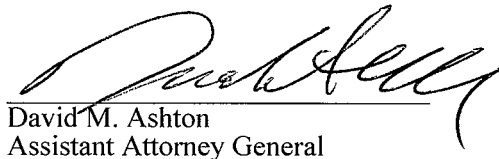


DAVID M. ASHTON
Assistant Attorney General
Antitrust Division
(512) 936-1781
(512) 320-0975 (fax)
David.Ashton@oag.texas.gov

CERTIFICATE OF SERVICE

I certify that on June 22, 2020, a true and correct copy of this Civil Investigative Demand was sent via certified mail, return receipt requested, and via electronic mail, addressed as follows:

Alphabet Inc.
c/o Paul Yetter
Yetter Coleman, LLP
811 Main Street, Suite 4100
Houston, TX 77002
713.632.8000
pyetter@yettercoleman.com


David M. Ashton
Assistant Attorney General

INSTRUCTIONS

1. Except as otherwise specified, this CID requires production of documents and information from January 1, 2014 to present day.
 - A. **This request is continuing in nature.** To the extent that Documents or information responsive to this CID are obtained or generated after the issuance of this CID, Your production and responses should be supplemented accordingly.
2. For Your response to this CID to be complete, the certification form attached as **Exhibit A** must be executed by the official supervising compliance with this CID, notarized, and submitted along with the responsive materials and information.
3. For the purposes of the request for documents, the following instructions apply:
 - A. No copying costs will be reimbursed unless a representative from the OAG has provided written approval, prior to submission, of the estimated cost of providing copies of the non-electronic documents requested in this CID. All other costs of complying with this CID will be borne by You.
 - B. If all or any portion of any responsive document is withheld for any reason, including a claim of attorney-client privilege, any other applicable privilege or immunity, or judicial order, please submit a list of the documents withheld and state individually as to each document: (1) the source of the document; (2) the name, address, position and organization of the author and recipient of the document; (3) the type, title, specific matter, length and date of the document; and (4) the reason for withholding the document, including, but not limited to, identifying the actual or anticipated litigation that underlies a claim of work product immunity.
 - C. Documents produced electronically must comply with the Specifications for Electronic Document Production attached hereto as **Exhibit B**.
 - a. In addition to the categories of documents and materials required to be produced in native form as stated in Exhibit B, You also must produce native files for any emails containing one or more hyperlinks in the body of the email (i.e., hyperlinks found in standard signature blocks do not, by themselves, require production of the email in native form).
 - D. All documents responsive to this request for documents, regardless of format or form and regardless of whether submitted in paper or electronic form:
 - a. shall be produced in complete form, unredacted unless privileged, and in the order in which they appear in Your files and shall not be shuffled or otherwise rearranged. For example:
 - i. if in their original condition papers were stapled, clipped or otherwise fastened together or maintained in file folders, binders, covers or containers, they shall be produced in such form, and any documents that must be removed from their original folders, binders, covers or containers to be produced shall be identified in a manner so as to clearly specify the folder, binder, cover or container from which such documents came; and
 - ii. if in their original condition electronic documents were maintained in folders or otherwise organized, they shall be produced in such form and information shall be produced so as to clearly specify the folder or organization format;

- b. shall be produced in color where necessary to interpret the document;
 - c. shall be marked on each page with corporate identification and consecutive document control numbers;
 - d. shall be accompanied by an index that identifies: (i) the name of each person from whom responsive documents are submitted; and (ii) the corresponding consecutive document control number(s) used to identify that person's documents, and if submitted in paper form, the box number containing such documents. If the index exists as a computer file(s), provide the index both as a printed hard copy and in machine-readable form (provided that OAG representatives determine prior to submission that the machine-readable form would be in a format that allows the agency to use the computer files).
- E. If books and records that provide accurate responses are not available, enter best estimates and describe how the estimates were derived, including the sources or bases of such estimates. Estimated data should be followed by the notation "est." If there is no reasonable way for You to make an estimate, provide an explanation.
- F. To the extent that any material responsive to a request for production is dynamic (e.g., a wiki or repository), produce in electronic format a Clone of said material, including all comments, versions, commits, revision history, and material from any associated information tracking systems, including, but not limited to, feature requests, bug reports, issues, sprints, tasks, user stories, project management, and trouble tickets.
4. If documents responsive to a particular document request no longer exist for reasons other than the ordinary course of business or the implementation of Your document retention policy as disclosed or described in response to an interrogatory or a document request, but You have reason to believe have been in existence, state the circumstances under which they were lost or destroyed, describe the documents to the fullest extent possible, state the document request(s) to which they are responsive, and identify persons having knowledge of the content of such documents.
5. If there have been any changes that affected Your answer to an interrogatory during the time period applicable to that interrogatory, or if Your response to an interrogatory would have been different at any point during the time period applicable to that interrogatory, Your response must describe those changes and the reason(s) for those changes.
6. If You are unable to respond to any request for documents or information fully, explain why such response is incomplete, the efforts made by You to obtain the information, and the source from which the complete response may be obtained.
7. The section headings in the interrogatories and document requests are included solely for convenience or reference and shall not in any way affect the meaning or interpretation of any of the specific interrogatories or requests.
8. The terms "and" and "or" have both conjunctive and disjunctive meanings.

**Questions concerning this CID should be directed to Assistant Attorney General
David M. Ashton (512-936-1781, David.Ashton@oag.texas.gov).**

DEFINITIONS

As used herein:

1. **“Ad Auction”** shall mean any auction to sell Ad Inventory in the Display Advertising Market.
2. **“Ad Exchange”** shall mean a digital marketplace for Ad Inventory that Publishers and Advertisers connect to, by direct or indirect means, in order to buy or sell their online Ad Inventory, including but not limited to AdX, AppNexus, The Rubicon Project, OpenX, ONE by AOL, or Oath, and including all predecessors and successors.
3. **“Ad Impression”** shall mean that specific advertisement displayed to a particular user in a specific ad space on a Publisher’s website.
4. **“Ad Inventory”** shall mean the ad space or impressions that any Publisher has available to sell in the Display Advertising Market.
5. **“Ad Request”** shall mean an electronic message sent from a browser to a Publisher Ad Server, SSP, or Ad Exchange requesting advertising content for insertion or incorporation into a web page. An Ad Request may be directed to a portion or the entirety of a web page, and it may include or consist of a Bid Request.
6. **“AdTech Products”** shall mean any and all systems and software, including predecessors and successors, used in the process of identifying, selecting, transmitting, and/or rendering display ads on a desktop or mobile device, as well as all systems and software, including predecessors and successors, that implement and/or effectuate an Ad Auction, including, but not limited to, receiving, processing, and transmitting Bid Requests, Bid Responses, or related messages. The term includes, but is not limited to, Google Ads, Google AdWords, Display & Video 360 (DV360), DoubleClick Bid Manager (DBM), Campaign Manager, DoubleClick Campaign Manager (DCM), AdX, Google Display Network (GDN), Google Ad Manager (GAM), and DoubleClick for Advertisers (DFA), including all predecessors and successors.
7. **“AdTech Auction Mechanics”** shall mean any and all systems and software that implement, effectuate, or modify any Ad Auction rules, preferences, designs, or features; this term includes but is not limited to Exchange Bidding, Open Bidding, Open Auction, Dynamic Allocation, Enhanced Dynamic Allocation, Optimized Competition, Real-Time Bidding, OpenRTB, Floor Pricing, or First Look.
8. **“Advertiser”** shall mean anyone who buys online Ad Inventory on a Publisher’s webpage to serve ads to those internet users who visit a Publisher’s webpage.
9. **“Advertiser Ad Server”** shall mean those tools used by Advertisers to manage their ad campaigns by directing how Advertisers store and deliver advertisements and tracking where ads are served, such as Your DoubleClick Campaign Manager (now known as Campaign Manager).
10. **“AMP Page”** shall mean a webpage designed and served as an accelerated mobile page, as described on the domain <https://amp.dev/>.
11. **“API”** shall mean application programming interface.
12. **“Attribution Model”** shall mean the rule or rules that determine how a purchase is credited or attributed to an ad.

13. **“Authorized Buyer”** shall mean a buyer participating in Your Authorized Buyers program (*see* <https://support.google.com/authorizedbuyers/answer/9070822> (last visited June 22, 2020); <https://www.google.com/doubleclick/adxbuyer/guidelines/> (last visited June 22, 2020)).
14. **“Behavioral Data”** shall mean all types of data collected regarding user preferences, statuses, and behaviors, regardless of whether acquired directly from the user (**“First-Party Data”**) or indirectly (**“Second-Party Data”** or **“Third-Party Data”**). Behavioral Data includes, but is not limited to, demographic information, device identification, browser identification, location information, browsing history, and session length.
15. **“Bid Request”** shall mean an electronic message containing (directly or indirectly) various pieces of information about the context of a piece of Ad Inventory (page content, URL, etc.) and the user (e.g., cookie data) that can be used to create a bid to display advertising content in one or more specified locations within a web page, irrespective of whether the message or its contents has been modified for transmission to an Advertiser.
16. **“Bid Response”** shall mean an electronic message generated in response to a Bid Request containing (directly or indirectly) a bid price and various pieces of information concerning proposed advertising content to be displayed in one or more specified locations identified in the corresponding Bid Request.
17. **“Client-Side Header Bidding”** shall mean that form of Header Bidding where the user’s browser transmits one or more Bid Requests and receives one or more Bid Responses.
18. **“Clone”** shall mean an exact copy of a document, Source Code Repository, or wiki including all commits, comments, versions, and revision history, if any. (*See* <https://help.github.com/en/github/getting-started-with-github/github-glossary#clone> (last viewed June 22, 2020)). Please note the instruction above, which requires any responsive dynamic material (e.g., a wiki or repository) to be produced in electronic format as a Clone of such material, including but not limited to, all comments, versions, commits, revision history, and material from any associated information tracking systems, including, but not limited to, feature requests, bug reports, issues, sprints, tasks, user stories, project management, and trouble tickets.
19. **“Cost-Per-Click”** or **“CPC”** shall mean that method of payment by which Advertisers pay a certain amount of money each time a user clicks on ad space filled by that Advertiser.
20. **“Cost-Per-Mille”** or **“CPM”** shall mean that method of payment by which Advertisers pay a certain amount of money for every thousand Ad Impressions that occur in a given ad space.
21. **“Demand-Side Products”** shall mean Your products that facilitate the purchase of Ad Inventory, including but not limited to, AdWords, Google Ads, DoubleClick for Advertisers, Google Display Network, DoubleClick Campaign Manager, Google Campaign Manager, DoubleClick Bid Manager, DV360, Google Analytics, Analytics 360, and Google Audience Center.
22. **“Demand Side Platform”** or **“DSP”** shall mean those entities that act on behalf of Advertisers to purchase Ad Inventory by connecting Advertisers to Ad Exchanges or SSPs or help Advertisers find the most effective Ad Impressions, including but not limited to, Display & Video 360 (DV360), DoubleClick Bid Manager, DataXu, MediaMath, AOL, Turn, the Trade Desk, Amobee, Rocket Fuel, Audience Science, AppNexus, Xandr, Adform, and Amazon DSP, and including all predecessors and successors bearing the same or similar functionality.

23. **“Direct Sales”** shall mean the portion of Ad Inventory that is sold directly by a Publisher, including programmatic guaranteed line items managed by the Publisher.
24. **“Display Advertising Market”** shall mean that portion of the online advertising market that displays visual-based advertisements on the website of a Publisher.
25. **“Document”** shall mean the original and all non-identical copies (whether different from the original because of notes, underlining, attachments, or otherwise), all computer files, and any written, printed, or recorded material of every kind in the possession, custody, or control of You. The term “computer files” includes information stored in or accessible through computers, portable computers, handheld devices, workstations, minicomputers, mainframes, servers, backup disks and tapes, archive disks and tapes, and other forms of offline storage, whether on or off the premises of Your place of business. This definition covers electronic mail messages (“e-mail”), wikis, slack messages, text messages, social media messages, and other electronic Documents in Your possession, custody, or control.
26. **“DoubleClick for Publishers”** or **“DFP”** shall mean Your Ad Server used to manage Publisher Ad Inventory before it was renamed along with AdX as Google Ad Manger, including any successor or predecessor product bearing the same or similar functionality.
27. **“Dynamic Allocation”** shall mean that feature of DFP introduced in 2014 that changed the procedure for how a winning bid was selected on DFP.
28. **“Enhanced Dynamic Allocation”** or **“EDA”** shall mean that feature of DFP that allowed AdX to use Dynamic Allocation on Premium Inventory and Direct Sales of Publishers.
29. **“Extended Time Period”** shall mean that period of time from January 1, 2010 to the present.
30. **“First Look”** shall mean the feature of Google Ad Manager described on <https://support.google.com/admanager/topic/9242064> (last viewed June 22, 2020) (*see also* <https://support.google.com/authorizedbuyers/answer/6142666#first-look> (last viewed June 22, 2020)), including any equivalent features in other Google AdTech Products.
31. **“Floor Pricing”** shall mean any system, procedure, or rules used to implement, determine, or define the floor price in an Ad Auction (first-price and/or second-price), including but not limited to the Unified Floor Pricing Rule described on <https://support.google.com/admanager/answer/9298008?hl=en> (last viewed June 22, 2020).
32. **“Google Ad Manager”** or **“GAM”** shall mean the product You refer to as to as Google Ad Manager, which includes Your Ad Server previously known as DFP, as well as Your Ad Exchange previously known as AdX, as well as any successor or predecessor product bearing the same or similar functionality.
33. **“Google Ad Exchange”** or **“AdX”** shall mean Your Ad Exchange before it was renamed Google Ad Manager, as well as the current Ad Exchange functionality of Google Ad Manager, and includes any successor or predecessor product bearing the same or similar functionality.
34. **“Google Ads”** or **“AdWords”** shall mean Your Demand Side Platform that allows Advertisers to buy display space on the Google Display Network and/or search advertising, and includes any successor or predecessor product bearing the same or similar functionality.

- 35. **“Google Cloud”** shall mean any cloud computing services provided by You under the brand Google Cloud, including any successor or predecessor product or service bearing the same or similar functionality. (See <https://cloud.google.com/> (last viewed June 22, 2020))
- 36. **“Google Display & Video 360”** or **“DV360”** shall mean the advertising product for managing the purchasing of Ad Inventory for Advertisers which you currently market under the name DV360, and shall include any successor or predecessor products bearing the same or similar functionality, including DoubleClick Campaign Manager, Google Audience Center, DoubleClick Studio, and DoubleClick Bid Manger.
- 37. **“Google Group”** shall have the meaning of the term as used on the webpage <https://support.google.com/a/answer/33329> (last viewed June 22, 2020), including e-mail distribution lists, collaborative inboxes, and Q&A forums. The term “Google Group” shall include any computer account that can be assigned or has been assigned access rights for a computer resource; has been assigned an e-mail address; and/or can serve as a proxy or an alias for a collection of one or more other computer accounts.
- 38. **“Google Publisher Tag”** shall have the same meaning as found at <https://developers.google.com/doubleclick-gpt/> (last viewed June 22, 2020).
- 39. **“Header Bidding”** shall mean that form of Ad Auction where Ad Exchanges and/or SSPs are invited to submit bids for an Ad Impression before an Ad Request is sent to the Publisher Ad Server.
- 40. **“Identify”** with respect to a Document means to give, to the extent known, the type of Document, the general subject matter, the date of the Document, and the author, addressees, and recipients of the Document.
- 41. **“Identify”** with respect to a Person means to give, to the extent known, the Person’s full name, title, and when referring to a natural Person, additionally, the present or last known place of employment. Once a Person has been first identified in accordance with this definition, only the name of that Person need be listed in response to subsequent discovery requesting the identity of that Person.
- 42. **“Last Look”** shall mean any ability for You to bid on Ad Inventory after all other bids have been submitted and to know the amount of the bid that You need to beat in order to win the Ad Auction.
- 43. **“Last Touch Attribution”** shall mean those types of Attribution Models whereby credit for a consumer’s purchase is assigned based on the consumer’s last point of contact.
- 44. **“Open Bidding”** or **“Exchange Bidding”** shall mean that feature of DFP which enables Publishers using DFP to connect to demand from third-party Ad Exchanges to AdX over a server-to-server connection, allowing multiple Ad Exchanges to submit bids simultaneously. This definition also includes any successor or predecessor AdTech Auction Mechanics bearing the same or similar functionality, e.g., any and all iterations of the pre-release projects You refer or have referred to as Jedi (e.g., Jedi+, Jedi++) or Demand Syndication.
- 45. **“Open Bidding Partner”** or **“Exchange Bidding Partner”** or **“Yield Partner”** shall mean any Ad Exchange, SSP, Advertiser, or other buyer, who is configured to and authorized to interface with Your Real-Time Bidding infrastructure to receive Bid Request messages and to submit corresponding Bid Response messages. (See <https://developers.google.com/authorized-buyers/rtb/>

- [open-bidding#receive-bid-requests-with-bidrequest](#) (last viewed June 22, 2020); <https://support.google.com/admanager/answer/7128453> (last viewed June 22, 2020)).
46. **“Optimized Competition”** shall mean the feature of Google Ad Manager described on <https://support.google.com/admanager/answer/7422526?hl=en> (last viewed June 22, 2020), including any equivalent or similar functionality in other Google AdTech Products.
47. **“Original TX CID”** shall mean the CID issued to You by the OAG on or about September 9, 2019.
48. **“Person”** is defined as set forth in TEX. BUS. & COM. CODE § 15.03(3), and includes any natural person, corporate entity, partnership, association, joint venture, government entity, or trust.
49. **“Publisher”** shall mean anyone who serves content on the internet that is monetized by selling Ad Inventory to Advertisers.
50. **“Publisher Ad Servers”** shall mean those tools used by Publishers to determine how Ad Inventory is filled, such as DFP, Google Ad Manager, OpenX, FreeWheel, or AdZerk, or any predecessors or successors bearing the same or similar functionality.
51. **“Real-Time Bidding”** or **“RTB”** shall mean that process by which Advertisers submit bids for Ad Impressions in real-time.
52. **“Relating to”** shall mean in whole or in part constituting, containing, concerning, embodying, reflecting, discussing, describing, analyzing, identifying, stating, referring to, dealing with, or in any way pertaining to.
53. **“RTC”** or **“Realtime Config”** shall mean that feature of AMP that enables Publishers to call up to five other servers for each piece of Ad Inventory (See <https://github.com/ampproject/amphtml/blob/master/extensions/amp-a4a/rtc-documentation.md> (last viewed June 22, 2020)).
54. **“Source Code”** shall mean human-readable instructions written in a language that can be executed by a computer. The term “Source Code” includes instructions that can be understood by an interpreter as well as instructions that must first be compiled or assembled prior to execution by a computer. The term “Source Code” further includes any associated files, including but not limited to comments, read me files, and change logs, without regard to whether these files can be executed.
55. **“Source Code Repository”** shall mean a file archive, web hosting facility, or platform for the storage, development, and version control of Source Code, including associated documentation, web pages, and other works. This term includes, but is not limited to GitHub, SVN, Google Code, and SourceForge. This term also includes all associated branches, forks, and submodules of each said repository.
56. **“Supply Side Platforms”** or **“SSP”** shall mean those entities that organize demand for Ad Inventory and connect Publishers to Ad Exchanges to sell Ad Inventory, including those that allow Publishers to connect to DSPs, such as AdX, AppNexus, Xandr, PubMatic, Rubicon Project, OpenX, One by AOL, and Oath, or any predecessors or successors bearing the same or similar functionality.
57. **“T-50 Advertisers”** shall mean those top fifty Advertisers identified in response to Original TX CID interrogatory number 123.

58. **“T-50 Publishers”** shall mean those top fifty Publishers identified in response to Original TX CID interrogatory number 124.
59. **“Unified Auction”** shall mean that feature of Open Bidding which allows Open Bidding Partners, DSPs, Header Bidding winners, and Direct Sales to compete in a simultaneous first-price Ad Auction.
60. **“You”, “Your”, “Alphabet”, or “Google”** shall mean Alphabet Inc., its past and present officers, employees, agents and representatives, parents and predecessors, divisions, subsidiaries, affiliates, partnerships and joint ventures. The terms “subsidiary”, “affiliate”, and “joint venture” refer to any firm in which there is total or partial ownership of twenty-five percent or more or total or partial control between the company and any other Person or entity.

INTERROGATORIES

AdTech Products and Information

1. Identify all Source Code Repositories relating to each of Your past, present, and proposed AdTech Products, including a detailed description of the purpose and function of each.
2. List the name and provide a brief description of each of Your AdTech Products over the Extended Time Period; for each such product, list any pre-release or internal code names or code words by which it has been known, its status (e.g., in use, retired, or renamed), all prior changes in status (including the date of any change in status; e.g., launch date, rebranding date), and any successor or predecessor product bearing the same or similar functionality (in whole or in part).
3. Identify all software tools (both internally developed and purchased or licensed from a third party) You use to manage the development of Your AdTech products.
4. Identify and describe in detail all categories or types of information which You:
 - a. receive from within an Ad Request, including all Behavioral Data associated with the viewer of a webpage and all contextual information concerning the content of the web page or the publisher of the web page (see <https://developers.google.com/DoubleClick-gpt/guides/get-started> (last viewed June 22, 2020));
 - b. transmit to any non-Google Ad Exchange or DSP upon Your receipt of an Ad Request; Your response to this sub-part should also identify any way in which such information differs from the information You receive from within an Ad Request;
 - c. transmit to any Authorized Buyer or Open Bidding Partner upon Your receipt of an Ad Request; Your response to this sub-part should also delineate any way in which such information differs from the information You receive from within an Ad Request;
 - d. access or retrieve as a result of or in anticipation of Your receipt of any information from within an Ad Request; Your response to this sub-part should also include all of Your reasons for accessing or retrieving such information, as well as the source(s) of such information; and
 - e. store, retain, or utilize with respect to Your receipt of an Ad Request; Your response to this sub-part should also include all of Your reasons for storing or retaining such information, as well as the source(s) of such information.
5. Identify and describe in detail any advantages to any of Your AdTech Products arising from Your access to, accumulation of, or use of Behavioral Data.
6. Identify and describe any advantages to any of Your AdTech Products arising from Your maintaining information that relates to past bidding behavior of bidders into an Ad Auction You conduct, including, but not limited to, Exchange Bidding and Open Bidding.
7. Explain how You (including but not limited to GAM, AdX, DFP, AdSense, Google Ads, or other Google products and services) use the data You collect about Publishers' websites and profiles of their users. For example, but without limitation, this request pertains to audience profiles for the Publisher's audience, reach, engagement, Publisher profiles, Ad Inventory assessments or evaluations or ratings, Publisher or inventory quality scores, ratings, user or audience

demographics, affinities, or other segmentation information or evaluations that You create or maintain about the website users.

AdTech Auction Mechanics

8. List the name and provide a brief description of each of Your AdTech Auction Mechanics over the Extended Time Period; for each such auction mechanic, list any pre-release or internal code names or code words by which it has been known, its status (e.g., in use, retired, or renamed), all prior changes in status (including the date of any change in status; e.g., launch date, rebranding date), and any successor or predecessor auction mechanic bearing the same or similar functionality (in whole or in part).
9. List and describe in detail each feature change to GAM, DFP, and AdX during the Extended Time Period, including but not limited to changes to reservations, line item types, line item priorities, any changes involving how line items compete with one another, and any changes involving how other factors beyond line item types and priorities affect ad selection.
10. Describe in detail how guaranteed line items and remnant line items affect the bidding price AdX submits to DFP or GAM or how they otherwise influence the auction process. As part of your response, describe how this has changed, if at all, throughout the Extended Time Period.
11. The time period applicable to this interrogatory is the Extended Time Period. List the specifications and descriptions of the data transferred or communicated between:
 - a. GAM, DFP, and AdX under Dynamic Allocation and Enhanced Dynamic Allocation; and
 - b. GAM or DFP and non-Google Ad Exchanges.
12. Describe in detail the extent, if any, to which You have developed or used any sort of software or algorithm to predict present or future real-time bids from any non-Google Ad Exchange or DSP.
13. Identify and describe in detail all categories or types of information which You:
 - a. use to conduct an Ad Auction to determine the winning bid amongst the bids received to display an ad, including the source(s) of such information;
 - b. provide to the submitter of a bid regarding the conduct, details, and results of an Ad Auction;
 - c. provide to the Publisher of the web page corresponding to an Ad Request regarding the conduct, details, and results of an Ad Auction; and
 - d. use to dynamically alter the conditions or circumstances of an Ad Auction, including but not limited to, alterations of bid floors, bid weights, and bid time outs.
14. Explain how You convert a winning bid from a second-price AdX or GAM auction to compete in a first-price auction such as Open Bidding.
15. Identify any restrictions on a Publisher's use of non-Google Ad Exchanges or SSPs when using DFP or GAM to connect to advertising demand, and explain Your technical or business justifications for each. As part of Your explanation, describe any circumstances under which a Publisher is allowed to serve an ad using DFP or GAM without allowing one of Your Demand-Side Products to bid on that ad inventory.

16. Explain Your business rationale for Your decision to provide “the minimum bid price to win after the auction closes” (see <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)) and, if You do not provide such information to those who bid on an Ad Auction via Header Bidding, state Your business rationale for why.
17. Identify all Authorized Buyers and Open Bidding Partners with whom you share information relating to the conduct of an Ad Auction (including the number of and content of competing bids). As part of Your response, identify any other parties with whom you share the same or similar information.
18. Explain Your business rationale for Your decision(s) to share information relating to Ad Auctions with the parties You identified in response to the foregoing Interrogatory. As part of your response, identify and explain any incentive You create or intend to create by such sharing.
19. To the extent You do not share information relating to the conduct of an Ad Auction (including the number of and content of competing bids) with parties who are not Open Bidding Partners or Authorized Buyers, explain Your business rationale for Your decision(s).

Relationships between Products

20. List, for any time during the Extended Time Period, any differences in data access, API access, or feature availability between:
 - a. DFP or GAM when interfacing with AdX versus non-Google Publisher Ad Servers when interfacing with AdX;
 - b. DFP or GAM when interfacing with AdX versus non-Google SSPs when interfacing with AdX;
 - c. AdX when interfacing with DFP or GAM versus non-Google Ad Exchanges when interfacing with DFP;
 - d. AdX or DFP or GAM when interfacing with AdSense versus non-Google Ad Exchanges when interfacing with AdSense;
 - e. Google Ads when interfacing with AdX, DFP, or GAM versus non-Google DSPs when interfacing with AdX, DFP, or GAM;
 - f. AdX, DFP, or GAM when interfacing with Google Ads versus non-Google Ad Exchanges when with Google Ads;
 - g. DV360 when interfacing with AdX, DFP, or GAM versus non-Google DSPs when interfacing with AdX, DFP, or GAM;
 - h. AdX, DFP, or GAM when interfacing with DV360 versus non-Google Ad Exchanges when interfacing with DV360;
 - i. SA360 when interfacing with DFP or GAM versus SA360 interfacing with non-Google Publisher Ad Servers;
 - j. Google Ads when interfacing with AdSense versus non-Google DSPs when interfacing with AdSense;

- k. Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite) when interfacing with AdX, DFP, or GAM versus non-Google advertising analytics tools when interfacing with AdX, DFP, or GAM;
- l. Google Ads when interfacing with Chrome versus non-Google DSPs when interfacing with Chrome; and
- m. AdX, DFP, or GAM when interfacing with Chrome versus non-Google Ad Exchanges or Publisher Ad Servers when interfacing with Chrome.

Google Ad Manager

- 21. Describe in detail all steps You have taken and any steps You plan to take (with timelines) to integrate (or otherwise co-market) Your products formerly known as DFP and AdX together into Your product now known as Google Ad Manager, including all steps relating to any technical, organizational, operational, marketing, and personnel changes.
- 22. Identify any advantages to You or to Publishers from integrating the functionality of DFP and AdX.
- 23. Identify all possible commission and fee structures (including any revenue sharing) that AdX or GAM charge for hosting an Ad Auction, and how You determine which commission and fee structures to apply.
- 24. With respect to Your decision that Publishers “will not be able to join the Bid Data Transfer file with other Ad Manager Data Transfer files” (*see* <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)):
 - a. list and describe the categories and types of information You provided to Publishers as part of any Bid Data Transfer or other Ad Manager Data Transfer files before this change;
 - b. list and describe the categories and types of information You provide to Publishers as part of any Bid Data Transfer or other Ad Manager Data Transfer files after this change;
 - c. explain Your business rationale for this change; and
 - d. state the extent to which this change impacts Publishers’ ability to link or reconcile bidding-level data (i.e., including how much each bidder bids) with individual-impression data (i.e., including the price at which the Ad Impression was sold), including the extent to which the new Bid Data Transfer files You provide include impression-level data or data relating to those participating in an Ad Auction via header bidding, as well as the existence or non-existence of common fields between data sets (e.g., KeyPart or TimeUsec2) to enable linking bidding-level data to impression-level data.
- 25. Have You made, considered making, or considered whether to make, any offer, formal or informal, to sell (or otherwise divest) or received any offer, formal or informal, to purchase (or otherwise acquire) any portion of Your business relating to GAM? If so, describe in detail all of Your internal considerations and any related negotiations, including identification of all potential purchasers, the portion(s) of Your business at issue, the substance and status of Your consideration or negotiations, and all relevant dates (e.g., date of offer to buy or sell, date on which transaction was abandoned, etc.).

Header Bidding and Open Bidding

26. Identify all Persons who work (or have worked) on or with any of Your internal operations groups, employee groups, investigative teams, or task forces which have studied or examined (or are studying or examining) the effects of Header Bidding on any aspect Your business.
27. Identify any reason why You might throttle the number or rate of queries made by any of Your AdTech Products to any third-party Ad Exchange.
28. Describe the function of Your Header Bidding Observatory Team, identify each Person who is or has ever been a member of that team, and describe each such Person's role and function on that team. (*See e.g.*, GOOG-TEX-00000804-05)
29. Identify each internal team or workgroup You have ever created, in whole or in part, for the purpose of (or which You have otherwise tasked with) studying the business and/or competitive effects of Header Bidding, including identification of all past and current members of each such team or workgroup and each such person's role or function within such team or workgroup.
30. Identify and explain each reason You are aware of for why Publishers and SSPs use both Header Bidding and Open Bidding in combination to sell Ad Inventory.
31. Identify the key performance metrics You use or have used in evaluating Open Bidding, and explain the results or conclusions generated from all simulations or experiments related to Open Bidding, including but not limited to the experiments referenced in GOOG-TEX-00452550-52.
32. Identify the key performance metrics that You use or have used to compare the performance of Open Bidding to Header Bidding. To the extent you do not consider yield or cookie match rate to be key performance metrics, please explain why not.
33. Describe any sales strategy, marketing effort, leverage used, or any other efforts undertaken by You to solicit:
 - a. any non-Google Ad Exchanges to become Open Bidding Partners or to otherwise increase their use of Open Bidding; and
 - b. Publishers to participate in Open Bidding.
34. Describe the characteristics of Ad Exchanges relevant to Your evaluations of whether to allow them to become Open Bidding Partners, including explanation of any characteristics which have caused or would cause You to reject them as an Open Bidding Partner.
35. Explain Your rationale(s) and justification(s) (business or otherwise) for, and the timing of, Your purported removal of Last Look.
36. Describe the results of, or conclusions drawn from, any experiment, analysis, or simulation You conducted or are aware of which relates to the impact of Open Bidding on Header Bidding, or vice versa, including, but not limited to, any impact on Publisher revenue from the adoption of Header Bidding, the win rate of Header Bidding winners in Open Bidding or against AdX, and the volume of inventory sold using Header Bidding solutions.
37. Describe the conditions under which any of Your AdTech Products have or will bid into the in-house Ad Auctions of any Publisher, including identification of the criteria You evaluate or have

- evaluated in making such decisions and the extent to which You consider the Publisher's participation in Open Bidding or use of Header Bidding.
38. Describe any benefit or advantage You have received or expect to receive as a result of Facebook's participation in Open Bidding.
 39. Describe any benefit or advantage You have received or expect to receive as a result of the Network Bidding Agreement between You and Facebook.
 40. Explain Your relationship with Facebook, including all of the ways in which Facebook interacts with any of Your AdTech Products.
 41. Explain the purpose of Your policies concerning multiple Ad Requests for a single ad slot, identify any changes You have made to such policies (with an indication of the date You made each such change), and identify any changes You intend to make to such policies in the future (with an indication of the date You intend to make each such change).
 42. Describe any increased visibility into Advertiser creatives from different demand sources that You gain when an ad is sold through Open Bidding as compared to being sold through a third-party Ad Exchange or SSP, or through traditional ad intermediation, and explain how You use or have used such information.
 43. State and explain Your rationale(s) for not allowing non-Google DSPs to bid directly into Open Bidding, and state the extent to which You have any plans to change this policy in the future.
 44. Describe how You calculate or determine Your revenue share when a bidder from a non-Google Ad Exchange wins an Ad Auction through Open Bidding.
 45. Identify the amount of revenue that You receive when a bidder from a non-Google Ad Exchange wins an Ad Auction through Open Bidding. As part of Your answer, include information sufficient to identify the mean revenue per transaction, median revenue per transaction, average difference between high and low amounts, and the amount of that revenue as a percentage of your overall ad intermediation revenue. Please also break this information down by the product type or revenue source.
 46. State and describe how, if at all, Your revenue share(s) differ between Open Bidding Partners and other demand sources. Your answer should include revenue share comparisons of Authorized Buyers and Google DSPs (DV360 or Google Ads).
 47. Identify any fees You charge to Publishers, SSPs, or Ad Exchanges due to the complexity of their line item configuration, state Your justification(s) for doing so, and describe the criteria You use to determine whether to charge such fees. To the extent that these fees vary based on the actual or suspected use of Header Bidding, identify the variations and Your justifications for doing so.
 48. Identify any fees You charge to a Publisher due to the complexity of their data reports, state Your justification(s) for doing so, and describe the criteria You use to determine whether to charge such fees.
 49. Identify any fees You charge to Publishers, SSPs, Advertisers, DSPs, or Ad Exchange when a Header Bidding bidder wins an auction to serve an ad that is ultimately served through DFP or GAM. Further identify how You calculate any such fees, state whether You ever adjust or waive such fees (and if so, the conditions under which you do), and state whether You charge the same

fees when the winning bid comes from the AdX or GAM auction (or is they are also modified or waived).

50. Identify any fees You charge to a Publisher who exceeds the number of line items or number of rules allowed by DFP or GAM.

Unified Auction and Unified Pricing Rules

51. With respect to Your formulation and/or placing of any bid within Unified Auction, describe in detail the extent, if any, to which You currently or have ever:
- a. taken into account the current bid of any other bidder(s) participating in the Ad Auction, including those participating via Header Bidding;
 - b. taken into account the past bidding behavior of any other bidder(s) participating in the Ad Auction, including those participating via Header Bidding; and
 - c. delayed Your placement of a bid in order to account for any real-time information; Your answer should include a description of each category or type of such real-time information.
52. Explain any process by which Publishers and Advertisers can verify that Google no longer has a Last Look advantage from Dynamic Allocation in Open Bidding or Unified Auction. As part of Your answer, explain whether this applies equally to non-guaranteed line items and other non-guaranteed advertising sources.
53. Describe the economic rational or technical reasons for Your decision to apply any Publisher price floor to all programmatic buyers for Publishers participating in Open Bidding as part of the transition to a Unified Auction format.
54. Describe any efforts You have made to assist Publishers in comparing their Header Bidding data with the Unified Auction data reporting You provide.

Reserve Price Optimization; Dynamic Revenue Sharing; Dynamic Flooring

55. Describe in detail how and when You utilize a dynamic price floor to automatically change the minimum sell price for ads sold through AdX. As part of Your response, identify whether or not You restrict (or have ever restricted) the ability to utilize such a feature to transactions or Publishers who are using AdX.
56. Describe in detail how Reserve Price Optimization (“RPO”) increases revenue for an Ad Impression and state whether RPO can increase the price paid by the Advertiser in a second-price auction. As part of Your answer, identify all inputs and variable that You consider (or have considered) in determining what a buyer is willing to pay, explain whether or not You notify (or have notified) the buyer that RPO is being used to adjust the Publisher’s reserve price, and describe the extent to which You utilize historical bid data to determine the RPO reserve price.
57. State whether the Your internal references to the terms “Bernake,” “Global Bernake,” and “Dynamic Revenue Sharing” (or “DRS”) are synonymous. If they are not, explain the different circumstances in which You adjust revenue share based on “Bernake,” “Global Bernake,” or “Dynamic Revenue Sharing” (or “DRS”).
58. Describe in detail how Dynamic Revenue Sharing (“DRS”) changes Your revenue share, including explanation of the effect that DRS has on the price paid by Advertisers. Along with Your response,

identify the number of monthly impressions won by You that would not have been won without DRS, expressed as a percentage of all impress won by You for each month since you began using DRS until the present day.

59. Explain the role that negative revenue share DRS and bid-oblivious have on Publishers' revenue, Advertisers' prices, or Your Revenue. As part of Your response, explain the conditions under which You have accepted (or under which You would accept) a negative revenue share in order to win a particular Ad Impression.
60. Describe any predictions or knowledge of any actual or anticipated effect(s) that Advertisers' awareness of DRS or RPO would have on the use of Your Demand-Side Products, the revenue that You receive from Your Demand-Side Products, or on Your Quality efforts (*see, e.g.,* GOOG-TEX-00082760).

Demand Side

61. Identify any commission(s) or fee(s) You charge to Advertisers who purchase Ad Inventory through Google Ads or AdWords.
62. Explain whether the AdWords or Google Ads auction that occurs prior to Unified Auction is a first-price or second-price auction. As part of Your answer, describe how the winning bid from the AdWords or Google Ads auction participates in Unified Auction.
63. Explain Your business justification(s), technical reason(s), or other rationale(s) for restricting AdWords or Google Ads Advertisers to purchasing display Ad Inventory exclusively from Google Display Network other than for remarketing purposes.
64. Describe the conditions under which and to whom You disclose log-level bid data from AdWords or Google Ads.
65. Identify any default ad campaign settings in AdWords or Google Ads that allow You to direct part of an Advertiser's ad spend to display inventory available on the Google Display Network or the Google Search Network. As part of your answer, identify the date that any such default setting was implemented.
66. Identify and describe in detail any policies or procedures that You have or have had regarding the use of Publishers' configuration data to recommend or direct that Publishers change their configurations to enable or preference Your AdTech Products.
67. Describe in detail any analysis, studies, experiments, or testing (including A/B testing or other comparative analysis) relating to the default campaign type in AdWords and/or the potential effects of any change or potential change thereto, including any analysis, studies, or testing relating to (or otherwise underlying or informing) Your decision to set the default campaign type in AdWords to include both Google Search Network and Google Display Network, and any effects such setting has had or could have on You or Publishers, Advertisers, Ad Exchanges, DFPs, or SSPs.
68. Explain how DV360, or any of its predecessor or successor products, selects the winning bid that it will submit to AdX, Open Bidding, Unified Auction, or a third-party Ad Exchange.
69. Identify any efforts, polices, or strategies to prevent any of Your Demand-Side Products from buying Ad Inventory through Header Bidding auctions. As part of Your answer, explain Your business justifications for any such decision.

70. Explain the extent to which Google Ads or DV360, or any of their predecessor or successor products, use algorithms, strategic bidding technologies, or bid shading tools to predict the bidding behavior of Advertisers or DSPs or to otherwise determine the amount they need to bid to win an Ad Auction. As part of Your answer, identify any data inputs to any strategic bidding technologies.
71. Identify and describe in detail (including a quotation of the relevant text of) any sort of volume discount, rebate provision, or minimum purchase requirement which You have offered to any Advertiser, Publisher, SSP, DSP, or Ad Exchange, and for each such discount, provision, or requirement, identify every Advertiser, Publisher, SSP, DSP, or Ad Exchange who has accepted or rejected such discount, provision, or requirement.
72. Identify and describe in detail all categories or types of Behavioral Data which You obtain via any of Your products (including, e.g., search, Chrome, maps, YouTube, GAM, etc.) and which You also utilize in any way for targeting ads to users, reporting, and/or attribution on DV360 or Google Ads. For each such category or type of Behavioral Data, state whether, and the extent to which, You make such data available (in the same format) to any non-Google DSP; to the extent You do not make such data available (in the same format), state all of Your reason(s).
73. Identify all possible fees that You charge (or have charged) any DSPs or Advertisers who purchase Ad Inventory through any of Your Demand-Side Products.

Data Analytics and Verification

74. Describe in detail all of Your reasons for instituting private APIs in any of Your AdTech Products or AdTech Auction Mechanics, or for otherwise limiting third-party data usage or portability.
75. Describe in detail all categories and types of information accessible through Your APIs by Advertisers with respect to their advertising campaigns.
76. With respect to each category and type of information You identified in response to the preceding Interrogatory, describe in detail the extent to which, and manner by which, Advertisers can independently verify such information.
77. Describe in detail Your reasons, technical or otherwise, for prohibiting Advertisers from using third-party data providers to create target audiences.
78. Describe in detail the manner by which You identify fraudulent Ad Impressions.
79. Describe in detail all Attribution Models You make available to any Advertisers.
80. Describe in detail Your process and methodology for determining how a sales credit may be assigned to an advertisement shown in response to a user-generated search query.
81. Describe in detail Your process and methodology for determining how a sales credit may be attributed to a display advertisement.
82. Explain how “KeyPart” and “TimeUse2” allows Publishers to link impression-level data with bidding data from AdX and Open Bidding. As part of Your answer, please explain any benefit from linking impression-level data with bidding data.
83. Explain the business rationale for Your decision to introduce a new type of data transfer file containing bidding data from Authorized Buyers and Open Bidding, but not impression level-data

or Header Bidding data. As part of Your answer, identify any alternate means by which Publishers can link their bidding data with impression-level data.

84. Explain the process by which Publishers can link Your data transfer file with performance data from Header Bidding auctions.
85. To the extent You contend that Your restrictions regarding Publishers' access to user data (or otherwise preventing Publishers from matching user data with bidding data) are necessary in order for You to comply with EU General Data Protection Regulation 2016/679 or other privacy law, please provide an explanation for such contention.

Revenue/Pricing/Profits

86. List and describe in detail each category of revenue You obtain when one or more of Your products or services is used to effectuate an Advertiser's purchase of Ad Inventory, including by way of example, take rate, ad-serving fees, service fees (for audience targeting or otherwise), and/or revenue shares. For each such category, list the general source of the revenue (e.g., publisher, advertiser, etc.) and describe your pricing structure (e.g., the CPC or CPM, percentage of revenue, etc.).
87. Explain the process whereby ad spend from Advertisers using Google Ads or DV360 is allocated between You and Google Network Member properties, and explain the criteria you use for making such allocation; provide separate answers for Google Ads and DV360.
88. Describe in detail the methodology by which You convert CPC bids placed via any of your Demand-Side Products to the CPM bids used in Unified Auction.
89. For the Extended Time period, separately list the revenue for each quarter for each of Your AdTech Products.
90. List the bates number(s) of all material you produced in response to document request number 97 in the Original TX CID ("Produce Documents sufficient to show Your share of Programmatic Advertising revenue (i.e. the total amount paid by Advertisers in respect of ads using your services) in comparison to the portion of Programmatic Advertising revenue received by Publishers for the Extended Time Period.").

Accelerated Mobile Pages (AMP)

91. Identify all efforts, technical or otherwise, by any third-party Ad Exchange or SSP to increase the number of demand sources able to bid on Ad Inventory on AMP Pages, including any efforts based on traditional ad mediation techniques, Header Bidding solutions, or by any other means.
92. Explain the benefits, if any, that You receive by implementing timeout restrictions on Ad Requests for AMP Pages, including any effect of shorter or longer timeout restrictions, as well as any other variables You consider with respect to modifying or implementing longer or shorter timeout restrictions. As part of Your answer, please explain how such timeout restrictions are implemented differently when serving ads on non-AMP mobile pages or non-AMP desktop pages.
93. Identify all third-party vendors of ad analytics services who You permit to interoperate with any of Your AdTech Products or who otherwise are able to access Your data regarding ad performance related to an AMP Page.

94. Identify and explain Your assessment of all of the factors contributing to (or causes of) lower monetization of Publisher Ad Inventory on AMP Pages compared to their non-AMP Page counterpart on mobile.
95. Identify and explain Your assessment of all of the factors contributing to (and causes of) lower monetization of Publisher Ad Inventory on AMP Pages compared to their non-AMP Page counterpart on desktop.
96. Describe the process by which You have given or currently give preference to bids to serve AMP-compliant ads over bids to serve non-AMP-compliant ads for Ad Inventory on AMP Pages through AdX or GAM, including explanation of the criteria You use for determining when an AMP-compliant ad is given preference and when it is not.
97. Describe the process by which You have given or currently give preference to serving AMP-compliant ads over serving non-AMP-compliant ads for Ad Inventory on AMP Pages through AdX or GAM, including explanation of the criteria You use for determining when an AMP-compliant ad is given preference and when it is not.
98. Describe any technical obstacles to implementing RTC on AMP Pages to support Client-Side Header Bidding.
99. Explain Your economic rationale for designing RTC on AMP Pages so that it would not support Client-Side Header Bidding.
100. Explain Your justifications (business, technical, or otherwise) for deprecating remote.html in AMP.

YouTube

101. Explain all of Your business justification(s) for removing the ability of non-Google DSPs to bid on YouTube Ad Inventory in January 2016.¹
102. Explain all of Your business justification(s) for not making YouTube TrueView Ad Inventory available for purchase via non-Google DSPs. The time period applicable to this interrogatory is the Extended Time Period.
103. Explain all of Your business justification(s) for not making YouTube mobile Ad Inventory available for purchase via non-Google DSPs. The time period applicable to this interrogatory is the Extended Time Period.
104. State the percentage of total YouTube Ad Inventory available for purchase via non-Google DSPs prior to January 2016. As part of Your answer, state the manner in which you determined this percentage. The time period applicable to this interrogatory is the Extended Time Period.
105. Identify all DSPs that have placed a bid for an Ad Impression on YouTube Ad Inventory through AdX during the Extended Time Period.

¹ Your answer to interrogatory 109 in the Original TX CID states that “As of January 2016, YouTube inventory was not available for purchase via any Ad Exchange”; to the extent that “January 2016” is *not* the time period in which You withdrew the ability of non-Google DSPs to bid on (one or more types of) YouTube Ad Inventory, state the date on which You made such change, and use that date in place of “January 2016” for each Interrogatory and Request for Documents in this CID containing the phrase “January 2016.”

106. Describe the means by which third-party DSPs were permitted to bid on YouTube Ad Inventory prior to January 2016. To the extent your answer varies depending on the type of Ad Inventory (e.g., mobile, TruView, etc.), indicate as such for all such types of YouTube Ad Inventory. The time period applicable to this interrogatory is the Extended Time Period.
107. From January 2016 to the present, describe the process of how Advertisers are able to bid on YouTube Ad Inventory. As part of Your answer, describe how this process was different before January 2016.
108. Prior to January 2016, state how much quarterly revenue You generated by virtue of non-Google DSPs bidding directly into AdX for YouTube Ad Inventory. The time period applicable to this interrogatory is the Extended Time Period.
109. Prior to January 2016, state how much revenue by quarter You generated from Advertisers purchasing YouTube Ad Inventory through one or more of Your Demand-Side Products. The time period applicable to this interrogatory is the Extended Time Period.
110. For each quarter from January 2016 to the present, separately state how much revenue You generated by virtue of YouTube Ad Inventory through one or more of Your Demand-Side Products.

Chrome

111. Do You contend that the EU General Data Protection Regulation 2016/679 or any other law requires You to implement any form or degree of third-party cookie blocking on Chrome? If so, state the reasons for such contention in detail. As part of Your answer, identify each provision of law which You contend requires such conduct.
112. State how You utilize Chrome user login data for any ad targeting, attribution, or reporting purposes.
113. State whether, and the extent to which, You utilize Chrome user login data to refresh cookies or otherwise connect user behavior to any of Your AdTech Products or AdTech Auction Mechanics.
114. State whether, and the extent to which, each instance of Chrome transmits a unique identifier to You irrespective of whether the user has logged into a Google account. To the extent it does, state whether, and the extent to which, You connect, join, or otherwise associate such identifier with any of Your AdTech Products or AdTech Auction Mechanics for any purpose.

Mobile

115. Identify and describe any of Your policies, actions, or attempts to limit calls into Ad Auctions on GAM, AdX, or AdMob from any non-Google DSPs or Ad Exchanges with respect to mobile Ad Inventory.
116. State and describe the extent to which the presence of a price floor that is higher than the second price in an Ad Auction on GAM, AdX, or AdMob affects Your decision to bid on mobile Ad Inventory. As part of Your answer, describe any changes to Your bidding algorithms to account for the presence of a price floor that is higher the amount of the second price in Your Ad Auction.
117. Describe any of Your efforts to introduce real-time bidding into the market for mobile Ad Inventory. As part of Your response, explain the role that Jedi for Networks played in that process and its effect on the adoption of Header Bidding for mobile Ad Inventory.

118. Identify and describe any restrictions You have instituted to restrict mobile Publishers from mediating with non-Google ad networks.
119. Describe Your response to the introduction of client-side Header Bidding open RTB solutions on mobile apps, including the extent to which You have purchased Ad Inventory through this technology and, if you have, the identity of the companies You partnered with in bidding on mobile app Ad Inventory through Client-Side Header Bidding or other open RTB solutions.

Google Cloud

120. Describe in detail how cloud computing technology is used in conjunction with any of Your AdTech Products, including any relationship between Google Cloud and any of Your AdTech Products.
121. Describe in detail how any non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server may experience cost savings, increased revenue, technical benefits (including the extent of any reductions in latency), or operational efficiencies when using Google Cloud.
122. Describe in detail the pricing structure for Google Cloud if used by a non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server, including a description of any discount(s) available to them (and identification of any criteria needed to qualify for such discount(s)).

Internal Communications Channels

123. Identify all Google Groups associated with (or which You otherwise use with respect to the development, maintenance, or operation of) any of Your AdTech Products or AdTech Auction Mechanics, including, but not limited to the Google Groups identified in Appendix A. For each such Google Group, describe how members are added to the Google Group (e.g., by invitation only or automatically upon request), including any limitations on the users permitted to join such Google Groups, and identify:
 - a. its name and description;
 - b. its e-mail address;
 - c. its e-mail settings (e.g., subject prefix, footer, and auto replies);
 - d. its type (e.g., e-mail list, collaborative inbox);
 - e. its defined roles (*see, e.g.,* <https://support.google.com/groups/answer/2464975> (last viewed June 22, 2020) and <https://support.google.com/a/answer/9007750> (last viewed June 22, 2020)), including but not limited to owner, manager, and member; and
 - f. for each defined role, the permissions associated with that role.
124. Identify all other non-email electronic group messaging systems, platforms, or channels, including but not limited to any slack channels, wikis, and hangouts, which You use to communicate internally in connection with (or which You otherwise use with respect to the development, maintenance, or operation of) any of Your AdTech Products or AdTech Auction Mechanics. For each such system, platform, or channel, provide a description and a list of users.

General

125. With respect to any company who provides, has provided, has developed, or is developing any AdTech Product(s), identify each such company in which You have, or have had, any ownership interest, and state the amount and nature of Your ownership interest. The time period applicable to this interrogatory is the Extended Time Period.
126. Describe any efforts You are aware of by Amazon, Facebook, or You to trade access to any Behavioral Data in exchange for any access to premium Publisher Ad Inventory.
127. For each of the following terms and phrases, identify any other terms or phrases which are synonymous or nearly synonymous, and explain in detail the meaning of each, including explanation of the each term or phrase's relationship to digital advertising generally, and to the extent applicable, each term or phrase's relationship to any of Your products, the inputs to or mechanics of any of Your products, or measurement of evaluation of any outcomes resulting from the operations of Your products:
 - a. ACM; Acura; AdECN; Ads Data Hub; Ads Intelligence Hub; AFAP; AFC; AFMA; AFMA; Agave F1; AGPS; Amalgam; Ampersand; AMPLE; ANO; Arcata integration; Aristotle; Audience Centric Management; Authorized Buyers; Autobidding; BART; Bernake; Bernake pool; Big Rocks; BigCluster/Nebula; Biscotti; Biscotti Keyed Serving; Boomerang lists; Buck Beak; CAC/TAC; Chromonolia; CIP; Cloverleaf; Consent Bump; CPD; CPR; Cram; Cramalgam; Cronut; Crumbs; DACH; DAI; DART; DCS Verticals; Defensive Bidding; Demand Product; Demand Syndication; Discovery (O&O bundled campaign; *see, e.g.*, GOOG-TEX-00112098); DoubleClick Data Platform (or "DDP"); Dr. Who; Dremel; DRM; DSO Accounts; DSO Inventory; DT redaction; DV3; DVIP; Dynamic Floor Pricing; Dynamic Price Optimization; Dynamic Reserve Price Optimization; Dynamic Revenue Sharing; Elmo; Enterprise Advertisers; ETC; Exchange of Exchanges; Exchange Syndication; Fastlane; Firebase Conversion; FLD; Flogging process (in relation to AMP); Floodlight; FLPAR; Full Circle; GAIA; GAIA keyed-serving (or "GKS"); GDA; GKS; GPP; GPT tag; GrCN; GreenTea; Grumpy; gTrade; Gwhirl; HMR; Honda; IAP information; IAS ad swapping; ICM Data; Inred; IronMan project; JBP framework; Jedi; Jedi 4 networks (or "J4N"); Jedi Prime; Jordan Deals Matching; Kansas; KIP; L&S; LCS sales channel; Leverage AdjUster for 3PAS; Liverail; Look-alike Modeling; mAFC; Magnolia; MASA; Matador; Matador; Melting Pot; Milhouse; Momiji; MPS sales channel; MRC accreditation; NAL; Narnia ; Narnia 2; Network Bidding; New Homer; New Network; Newfie; Nirmal; Northern Lights; Northstar 1; Northstar 2; NPM; NPM 2.0; One Google; Online tentpoles; OPA; OPG; Optimized Competition; OSO Inventory; P&G; Padawan; PAL signals; PBS SPMs; Pelican; PFBR; PLA; PNG; Poirot; Potassium; ProCraft; Project Airborne; Project Apocalypse; Project Dyna TAC; Project Fidelis; Project Gotham; Project Harmony; Project Hudson; Project Jordan; Project Lincoln; Project Nera; Project OAR; Project Phelps; Project Rey; Project Sandwich; Project Simple; Project Tailor; Project Wayne; Project Yavin; PRPL; p-score; Pubpangaea; QPS; RASCI; RASTA; Rasta; React; Reserve Price Optimization; Revenue Module; RLSA; Rocky III; Safe Frame; SAU; SBS; Scripty; SDF; Simba; Smart Pricing; Sparkles; Superroot; Supply path optimization; Tank; Triton; Truthful DRS (or "tDRS"); TTFCP; TYM; Unity; Universal Auction; Universal Bidding; VAST; VAST AdData; Viral; VMAP; VOLT; VPAID; Walnut; Walnut Pie; Waterloo; Wildfire ; Wonder Twins; xBid; XFP; XFP API; XMA; Yavin Integration; Yoda; YouTube Sparkle; Zoidberg.

128. Separately list all of Your past and present employees, personnel, and/or groups in charge of decision-making, experimenting, testing, analyzing, development of, or implementation of each of the following during the Extended Time Period:
- a. AdX's auction latency requirement
 - b. Google Display Network's Fourth-Party Call restrictions;
 - c. Your policy restricting Advertisers' use of third-party data on Google Search, Gmail, and YouTube;
 - d. the decision to revoke access to Doubleclick ID log-level data;
 - e. the decision to limit or deprecate Third-party cookies in Chrome;
 - f. the decision to restrict contextual data shared via AdX with Advertisers;
 - g. the Dynamic Allocation feature change;
 - h. the feature change allowing AdX to outbid non-Google Ad Exchanges after non-Google Ad Exchanges submitted their bids;
 - i. the Enhanced Dynamic Allocation feature change;
 - j. DFP, AdX, or GAM's support for Header Bidding;
 - k. the decision to support, to limit support, or not support the option for Publishers to use Header Bidding in GAM and AdX;
 - l. the Open Bidding feature change; and
 - m. the Unified Auction feature change.
129. Separately list all of Your current employees, and the title of each, whose primary responsibilities are associated with:
- a. the Publisher Ad Server functionality of GAM (or any other functionality previously associated with DFP before its integration into GAM);
 - b. the Ad Exchange functionality of GAM (or any other functionality previously associated with AdX before its integration into GAM); and
 - c. both the Ad Exchange functionality of GAM (or any other functionality previously associated with AdX before its integration into GAM) and the Publisher Ad Server functionality of GAM (or any other functionality previously associated with DFP before its integration into GAM).
130. List search terms You used to gather documents in response to each civil investigative demand dated January 1, 2019 or later from the United States Department of Justice, including, but not limited to, Civil Investigative Demand Nos. 30092, 30120, and 30121.
131. Identify all Documents relied upon by You in formulating Your answer to each Interrogatory in this CID.

132. Identify, by bates number, each Document or range of Documents produced that correspond to each Request for Documents in this CID.

REQUESTS FOR DOCUMENTS

AdTech Products and Information

1. Produce a Clone of each Source Code Repository related to each of Your past, present, and proposed AdTech Products and AdTech Auction Mechanics.
2. Produce all Documents relating to Your development, maintenance, deployment, use, and/or operation of any past or present AdTech System, including, but not limited to, manuals, presentations, architecture diagrams, product requirement documents, data flow diagrams, programming guides, API references, protocol descriptions, interfaces, declarations, design specifications, launch reports, progress reports, status reports, onboarding materials, and/or training materials.
3. Produce a Clone of each Source Code Repository relating to processing and responding to commands, methods, and requests associated with Google Publisher Tags as described at <https://support.google.com/admanager/answer/181073> (last viewed June 22, 2020).
4. Produce a Clone of each Source Code Repository relating to Your receipt of Ad Requests, including the processing and/or storage of the contents of Ad Requests.
5. Produce a Clone of each Source Code Repository relating to or otherwise effectuating the transmission of messages, information, or data from any of Your past, present, or proposed AdTech Products to any Publisher Ad Server.
6. Produce a Clone of each Source Code Repository relating to the transmission of Bid Requests in response to the receipt of an Ad Request, including Source Code related to the creation, transmission, and storage of such Bid Requests.
7. Produce a Clone of each Source Code Repository relating to the receipt of Bid Responses in response to Bid Requests.
8. Produce a Clone of each Source Code Repository relating to conducting an Ad Auction, including Source Code related to the determination of the winner, storage of information concerning bids, storage of information concerning the winning bidder, and the transmission of information concerning the result of the Ad Auction to others (including Advertisers and Publishers).
9. Produce a Clone of each Source Code Repository relating to dynamic alterations to the conditions or circumstances of an Ad Auction, including but not limited to, Source Code relating to alterations of bid floors, bid weights, and bid time outs.
10. Produce the database configuration (including schemas, procedures, functions, and triggers) for all databases used to store data relating to Ad Requests and their corresponding bids to display ads on web pages.
11. Produce the database configuration (including schemas, procedures, functions, and triggers) for all databases accessed during the process of responding to an Ad Request, including but not limited to, databases containing Behavioral Data concerning the viewer of a web page.
12. Produce a Clone of all Source Code that implements or effectuates Dynamic Allocation, Enhanced Dynamic Allocation, Exchange Bidding, Open Bidding, Unified Auction, Optimized Competition, Floor Pricing, and/or First Look.

13. Produce all Documents addressing any advantages to You or Your AdTech Products arising from Your access to, accumulation of, or use of Behavioral Data.
14. Produce all Documents addressing any advantages to You or Your AdTech Products arising from Your access to, accumulation of, or use of information relating to past bidding behavior of bidders into an Ad Auction You conduct, including, but not limited to, Exchange Bidding and Open Bidding.
15. Produce Documents, including product roadmaps, API documentation, interface documentation, interface specification, code documentation, product architecture schematics, presentations, and other documents from the Extended Time Period that discuss, explain, or otherwise relate to the data You collect about Publishers' websites and profiles of their users. For example, but without limitation, this request pertains to audience profiles for the Publisher's audience, reach, engagement, Publisher profiles, Ad Inventory assessments or evaluations or ratings, Publisher or inventory quality scores, ratings, user or audience demographics, affinities, or other segmentation information or evaluations that You create or maintain about the website users.

AdTech Auction Mechanics

16. Produce all planning documents and communications, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making or analytical Documents relating to Your decision to provide "the minimum bid price to win after the auction closes" (*see* <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/>), including those relating to Your consideration of whether such information could or should be shared with those who bid on an Ad Auction via Header Bidding.
17. Produce all Documents relating to Your process of modifying a winning AdX bid from a second-price auction to compete in a subsequent first-price auction (such as in Open Bidding).
18. Produce all Documents that relate to Your decision to apply Publisher price floors to all programmatic buyers for Publishers participating in Open Bidding as part of the transition to a Unified Auction format.
19. Produce all guides, references, interfaces, specifications, diagrams, or other documentation You provide or have provided to any Open Bidding Partners regarding their interfacing with or participation in Open Bidding. (*See* <https://support.google.com/admanager/answer/7128453?hl=en> (last viewed June 22, 2020)).
20. Produce all Documents, including any Documents from Your Rasta database, evaluating, discussing, or comprising all experiments, tests, analyses, predictions, and other considerations for feature changes to GAM, DFP, and AdX during the Extended Time Period, including but not limited to Your development and implementation of:
 - a. Dynamic Allocation;
 - b. restricting non-Google Ad Exchanges' ability to access Dynamic Allocation before Dynamic Allocation became available to non-Google Ad Exchanges;
 - c. Your decision to allow AdX to outbid non-Google Ad Exchanges after they submitted their bids, as well as Your decision to discontinue this conduct;
 - d. Enhanced Dynamic Allocation;

- e. Your decision not to support the option for Publishers to use Header Bidding in GAM, DFP, and AdX;
- f. Open Bidding or Exchange Bidding;
- g. Your decision to charge a fee to Ad Exchanges who participated in Open Bidding or Exchange Bidding; and
- h. Unified Auction.

Relationships between Products

21. The time period applicable to this request is the Extended Time Period. Produce Documents, including but not limited to product roadmaps, API documentation, interface documentation, interface specification, code documentation, product architecture schematics, and presentations (i) that detail or address the specifications, API documentation, and descriptions of the data transferred or communicated between the following, and/or (ii) that detail or address the functionality and interactions between the following:
- a. DFP and AdX;
 - b. the Ad Server functionality of GAM and the Ad Auction functionality of GAM;
 - c. non-Google Publisher Ad Servers and AdX;
 - d. non-Google SSPs and AdX;
 - e. non-Google Ad Exchanges and DFP or GAM;
 - f. AdSense and AdX or DFP or GAM;
 - g. non-Google Ad Exchanges or Publisher Ad Servers and AdSense;
 - h. Google Ads and AdX or DFP or GAM;
 - i. non-Google DSPs and AdX or DFP or GAM;
 - j. non-Google Ad Exchanges and Google Ads;
 - k. non-Google Publisher Ad Servers and Google Ads;
 - l. DV360 and AdX or DFP or GAM;
 - m. non-Google Ad Exchanges and DV360;
 - n. SA360 and DFP or GAM;
 - o. non-Google Publisher Ad Servers and SA360;
 - p. AdSense and Google Ads;
 - q. non-Google DSPs and AdSense;
 - r. Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite) and AdX or DFP or GAM;

- s. non-Google Ad Exchanges and Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite);
 - t. non-Google advertising analytics tools and AdX or DFP or GAM;
 - u. Chrome and Google Ads or DV360;
 - v. non-Google DSPs and Chrome;
 - w. Chrome and AdX or DFP or GAM; and
 - x. non-Google Ad Exchanges or Publisher Ad Servers and Chrome.
22. Produce any Documents from the Extended Time Period that discuss or otherwise relate to analysis of, measurement of, or decisions related to:
- a. the availability of the Google Display Network on non-Google Ad Exchanges;
 - b. the availability of the Google Display Network on non-Google DSPs;
 - c. Google Ads' ability or inability to interface with non-Google Ad Exchanges;
 - d. YouTube's ability or inability to interface with non-Google Ad Exchanges; and
 - e. YouTube's ability or inability to interface with non-Google DSPs.

Changes to Products and Policies

23. Produce Documents from the Extended Time Period containing or discussing any measurement, analysis, or consideration relating to any of the following:
- a. considered or actual changes to user profiles, super profiles, and other ad targeting criteria used;
 - b. considered or actual changes to conventions or protocols for data sharing with Advertisers and Publishers, including bid data transfer files, and results, output, or impressions data;
 - c. considered or actual changes to the interoperability of Your AdTech Products with any non-Google AdTech Products;
 - d. considered or actual changes to the configuration options available to Publishers in GAM, DFP or AdX;
 - e. considered or actual changes to AdX's auction latency requirements;
 - f. Google Display Network's Fourth-Party Call restrictions (*see* <https://support.google.com/adspolicy/answer/94230?hl=en>) (last viewed June 22, 2020);
 - g. considered or actual changes to Google's policy restricting Advertisers' use of third-party data on Google Search, Gmail, and YouTube;
 - h. Your decision to not provide access to DoubleClick ID log-level data;
 - i. Chrome's treatment of or policies toward Third-Party cookies;
 - j. Your policies or conduct in sharing contextual user data (such as the categories of websites visited by users) via AdX or GAM with Advertisers.

Ad Auction Results

24. Produce data sufficient to show, separately for Google Ads and DV360, on a monthly basis for the period starting January 2016 and until September 2019, the number of Ad Impressions (as an absolute number and as a percentage of the overall impressions made available on AdX or GAM) that Google Ads or DV360 won slightly above the bid submitted from a Header Bidding demand partner, whereby such bid from the Header Bidding demand partner would have otherwise won the impression (the “winning header bidding bid”). For the purposes of this request, “slightly above” means that the difference between the price that Google Ads or DV360 paid and the winning Header Bidding bid does not exceed \$0.10 CPM.
25. Produce data sufficient to show, separately for Google Ads and DV360, on a monthly basis for the period starting October 2019 and until the present on the number of impressions (as an absolute number and as a percentage of the total number of impressions available in the Unified Auction) that Google Ads or DV360 won slightly above the floor price. For the purposes of this request, “slightly above” means that the difference between the price Google Ads or DV360 paid and the floor price does not exceed \$0.10 CPM.

Google Ad Manager

26. Produce all Documents, including any tests, experiments, or simulations, and including any Documents from Your Rasta database, relating to the steps You have taken, and any steps You plan to take, to integrate (or otherwise co-market) Your products formerly known as DFP and AdX together into Your product now known as Google Ad Manager, including all steps relating to any technical, organizational, and personnel changes.
27. Produce all Documents that relate to changing the fees or commissions charged by AdX for conducting an auction of Ad Inventory.
28. Produce all contracts, policies, terms of use, requirements, or other agreements between You and any Open Bidding Partner relating to Open Bidding.
29. Produce all Documents, including any Documents from Your Rasta database, relating to any experiment, analysis, or simulation You have conducted which relate to any of the “number of adjustments to the auction process” (or other “optimizations” to AdX or GAM) which You have made or have considered making (several such adjustments are listed in Your response to the Original TX CID Interrogatory 33).
30. To the extent you answered Interrogatory 25 above in the affirmative, produce all Documents relating to any such considerations, offer(s), and negotiations, including all related internal and external communications.

Header Bidding and Open Bidding

31. Produce all Documents relating to any of Your internal operations groups, employee groups, investigative teams, or task forces which have studied or examined (or are studying or examining) the effects of Header Bidding on any aspect Your business.
32. Produce all Documents relating to the establishment of, operation of, and conclusions drawn by Your Header Bidding Observatory Team.

33. Produce all marketing materials, materials relating to publicity campaigns, and material You provide to any of Your sales teams regarding Header Bidding.
34. Produce all Documents relating to any attempts by any Publisher, SSP, or Publisher Ad network to circumvent GAM's uniform pricing rules.
35. Produce the results of, and any supporting documentation associated with, any simulation or experiment You have conducted or are aware of related to Open Bidding, including but not limited to the experiments referenced in GOOG-TEX-00452550 and including any Documents from Your Rasta database.
36. Produce all Documents relating to Publishers or SSPs using Header Bidding and Open Bidding in combination, the implications of such conduct to You, and any actions You have taken or considered in response.
37. Produce all Documents that compare or relate to comparison of the performance of Open Bidding relative to Header Bidding, including but not limited to, the results of, and any supporting documentation associated with, any simulation or performance experiment related to Open Bidding and Header Bidding, including any Documents from Your Rasta database.
38. Produce all Documents containing or relating to any analysis of the flow of queries running through Header Bidding as compared to Open Bidding, including any analysis conducted by Al Fabrizio.
39. Produce all Documents relating to any attempts by You to solicit any Ad Exchange to become an Open Bidding Partner, and all Documents relating to any independent action You have taken or considered to increase or accelerate the adoption of Open Bidding by other Ad Exchanges.
40. Produce all Documents relating to any attempts by You to solicit any Publisher to participate in Open Bidding, and all Documents relating to any independent action You have taken or considered to increase or accelerate the adoption of Open Bidding by Publishers.
41. Produce all Documents relating to Your evaluation of Open Bidding Partners.
42. Produce all Documents relating to Your decision to remove Last Look for Open Bidding.
43. Produce all Documents, including any Documents from Your Rasta database, relating to any experiment, analysis, or simulation You conducted or are aware of which relates to the impact of Open Bidding on Header Bidding, including but not limited to, any impact on Publisher revenue from the adoption of Header Bidding, the win rate of Header Bidding winners in Open Bidding or against AdX, and the volume of inventory sold through Header Bidding solutions.
44. Produce all Documents relating to your policies concerning multiple Ad Requests for a single ad slot, including any drafts, proposals, or correspondence relating to any changes made to Your multi-call policies.
45. Produce all Documents relating to any advantage or benefit conferred by increased viewability into Advertiser creatives as a result of Open Bidding which was not available to You prior to the introduction of Open Bidding.
46. Produce all Documents relating to Facebook's participation in Open Bidding, including but not limited to, any assistance, cooperation, coordination, or discussion concerning Facebook's participation in Open Bidding.

47. Produce all Documents relating to the negotiation and implementation of the Network Bidding Agreement between You and Facebook.
48. Produce all contracts or agreements between You and Facebook.
49. Produce all Documents relating to any fees You charge to Publishers, SSPs, or Ad Exchanges using Header Bidding that are not charged to Publishers, SSPs, or Ad Exchanges who are not using Header Bidding, or who are Open Bidding Partners or Authorized Buyers.
50. Produce all Documents relating to how You calculate or determine ad serving fees, the circumstances in which You charge ad serving fees, the circumstances in which You do not charge ad serving fees, and the circumstances in which You allow an exception to ad serving fees You would otherwise charge.
51. Produce all Documents relating to how You calculate fees for overly complex data reports and the circumstances in which such fees are charged.
52. Produce any contract between You and any third-party Ad Exchange, SSP, or Publisher that contains any provision that grants You “fair access” or the opportunity to bid on Publisher Ad Inventory sold on their platform.
53. Produce any contract between You and any third-party Ad Exchange, SSP, or Publisher that contains any provision that requires them to make Ad Inventory available through Open Bidding if they also sell that inventory through Header Bidding.

Unified Auction & Unified Pricing Rules

54. Produce all Documents that relate to Your decision to implement Unified Auction and adopt Unified Pricing Rules, including but not limited to, strategy documents, white papers, competitive impact studies, and market analyses preceding that decision as well as those evaluating the impact and performance of Your Ad Tech Products as a result of Your decision.
55. Produce all Documents, including any Documents from Your Rasta database, that relate to any internal tests, experiments, simulations, or studies concerning the performance of third-party DSPs, Ad Networks, indirect line items, Direct sales and Header Bidding as a result of Your decision to move to Unified Auction and adopt Unified Pricing Rules.
56. Produce Documents that relate to any complaints made or concerns expressed by any T-50 Publisher, any T-50 Advertiser, any SSP, any DSP, or Ad Exchange, regarding the Unified Auction process (and/or Your announcement or implementation of Unified Auction), including all such complaints or concerns, any of Your internal discussion relating thereto, and any of Your responses.
57. Produce Documents analyzing or discussing the impact of Unified Auction on non-Google Ad Exchanges, Publishers, and/or Advertisers.
58. With respect to Your decision that publishers “will not be able to join the Bid Data Transfer file with other Ad Manager Data Transfer files” (see <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)), produce:
 - a. all Documents relating to Your decision, including all correspondence and studies underlying or otherwise relating to Your decision, Your evaluation of any alternatives,

and/or any analysis of how the decision may affect or has affected any Publisher or Header Bidding solution;

- b. a representative example of the Bid Data Transfer and other Ad Manager Data Transfer files relating to the sale of a particular Ad Impression won by a bidder participating via Header Bidding which You provided to the Publisher before this change; and
 - c. a representative example of the Bid Data Transfer and other Ad Manager Data Transfer files relating to the sale of a particular Ad Impression won by a bidder participating via Header Bidding which You provided to the Publisher after this change.
59. Produce all Documents, including any Documents from Your Rasta database and any internal tests, experiments, simulations, or studies, which relate to Your Decision to introduce a new type of Bid Data Transfer file that contains bidding data from Authorized Buyers and Open Bidding, but which does not contain impression-level data or Header Bidding data.
60. Produce Documents sufficient to show the process by which Publishers can link Your data transfer file with performance data from Header Bidding auctions.
61. Produce Documents sufficient to show any efforts You have made to assist Publishers in comparing their Header Bidding data with the Unified Auction data reporting You provide.
62. Produce all Documents, including any Documents from Your Rasta database and any internal tests, experiments, simulations, or studies, which measure, forecast, predict, study, or research the impact that Your decision to move to a Unified Auction or adopt Unified Pricing Rules would have or has had on the adoption of Header Bidding.
63. Produce any Documents indicating the extent to which Your decision to move to a Unified Auction and adopt Unified Pricing Rules was based on preventing any of Your Demand-Side Products from bidding against one another.
64. Produce all Documents referencing both “Header Bidding” (or any synonymous term or phrase, e.g., “HB”) and “Transfer file” (or any synonymous term or phrase).

Reserve Price Optimization; Dynamic Revenue Sharing; Dynamic Flooring

65. Produce Documents relating to any decision by You to restrict the utilization of dynamic price floors to Publishers or transactions who are using AdX.
66. Produce all Documents relating to Your determination of the reserve price for an Ad Impression when Reserve Price Optimization (“RPO”) or dynamic floor pricing is enabled, including any Documents relating to the conditions of or results from any experiment or testing You have performed concerning RPO or dynamic floor pricing.
67. Produce Documents relating to Your decision to implement Dynamic Revenue Sharing (“DRS”), including any Document relating to analysis of the effect of DRS on Publishers’ revenue, Advertisers’ prices, or Your revenue, and including any Documents relating to the conditions of or results from any experiment(s) or test(s) You ran concerning DRS.
68. Produce Documents, including any Documents from Your Rasta database, relating to any studies, tests, analyses, or experiments concerning negative revenue share DRS or bid-oblivious DRS.

69. Produce Document relating to any complaints from any DSP or Advertiser regarding Your use of DRS or RPO, including Your internal discussions of any such complaints and any responses You have made to such complaints.

Demand Side

70. Produce all Documents that relate to Your decision to restrict AdWords or Google Ads Advertisers to purchasing display inventory exclusively from the Google Display Network other than for remarketing purposes.
71. Produce all Documents, including any analysis, experiments, studies, or testing (including A/B testing or other comparative analysis) relating to the default campaign type in AdWords and/or the potential effects of any change or potential change thereto, including any analysis, studies, or testing relating to (or otherwise underlying or informing) Your decision to set the default campaign type in AdWords to include both Google Search Network and Google Display Network, and any effects such setting has had or could have on You or any Publisher, Advertiser, Ad Exchange, DFP, or SSP.
72. Produce all Documents that relate to any decision by You to disclose AdWords and Google Ads log-level bidding data.
73. Produce any Documents that demonstrate how DV360 selects a winning bid from multiple demand sources to before it participates in an AdX auction, Open Bidding auction, or Unified Auction.
74. Produce all Documents that relate to bid shading, bidding algorithms, artificial intelligence, computer programs and applications, or other bidding strategy used by Google Ads or DV360 when bidding into any Ad Exchange, Header Bidding solution, or other auction.
75. Produce Documents that relate to any efforts undertaken, policies implemented, or buying strategies implemented by You to avoid buying Ad Inventory through Header Bidding auctions.

Data Analytics and Verification

76. Produce all Documents relating to Your introduction of private APIs in any of Your AdTech Products or AdTech Auction Mechanics, or for otherwise limiting third-party data usage or portability.
77. Produce all Documents relating to Your efforts to address, track, or combat fraudulent digital ad impressions.
78. Produce all business and planning documents relating to Your consideration of, analysis of, or choice to offer any type of Attribution Model, including any type of Last Touch Attribution.

Revenue/Pricing/Profits

79. Produce all financial audits and audit reports concerning each of Your AdTech Products.

Accelerated Mobile Pages (AMP)

80. Produce all Documents relating to any efforts by any third-party Ad Exchange or SSP to increase the number of demand sources able to bid on Ad Inventory on AMP Pages, including those relating to any efforts based on traditional mediation techniques, Header Bidding, or by any other means.

81. Produce all Documents relating to Your use or imposition of timeout restrictions on Ad Requests relating to ads served on AMP Pages when the ad being served was sold through a Header Bidding solution or through any competing Ad Exchange.
82. Produce all Documents relating to Your restrictions on third-party vendors who provide ad analytics services from interoperating with any of Your AdTech Products or from having access to data relating to ad performance on an AMP Page.
83. Produce all Documents relating to lower monetization of Ad Inventory on AMP Pages compared to their non-AMP Page counterparts on mobile.
84. Produce all Documents relating to lower monetization of Ad Inventory on AMP Pages compared to their non-AMP Page counterparts on desktop.
85. Produce all Documents relating to Your method for preferencing AMP-compliant ads for AMP Pages on AdX or GAM.
86. Produce all experiments, analysis, or reports, including any such Documents from Your Rasta database, relating to Your preferencing of AMP-compliant ads for AMP Pages on AdX or GAM.
87. Produce all Documents relating to the technical feasibility of designing AMP in way that would support Client-Side Header Bidding solutions.
88. Produce all Documents relating to any complaints by any Publisher regarding AMP's lack of support for Client-Side Header Bidding.
89. Produce Documents relating to any efforts You have made to participate in or avoid participation in Client-Side Header Bidding or other open RTB solutions for mobile apps.

YouTube

90. Produce all Documents relating to Your decision to remove from third-party DSPs the ability to bid on any YouTube Ad Inventory.
91. Produce all Documents relating to any communications from DSPs regarding an inability to bid on YouTube inventory.

Chrome

92. Produce all communications between You and any representative or agent of the Digital Advertising Alliance relating to the blocking or potential blocking of third-party cookies on Chrome.

Mobile

93. Produce Documents relating to any of Your policies, actions, or attempts to limit calls into Ad Auctions on GAM, AdX, or AdMob from any non-Google DSPs or Ad Exchanges with respect to Ad Inventory on mobile devices.
94. Produce Documents that relate to any changes to Your bidding algorithms for Ad Inventory on mobile devices to account for circumstances where a Publisher has set a price floor higher than the second price in Your Ad Auction.

95. Produce Documents relating to Your efforts to introduce real-time bidding into the market for mobile Ad Inventory, including but not limited to, Documents relating to the use of Jedi for Networks for this purpose and any Documents studying or analyzing the actual or potential effects that such efforts would have on the adoption of Header Bidding.
96. Produce Documents relating to any restrictions You have instituted to restrict mobile Publishers from mediating with non-Google ad networks.

Google Cloud

97. Produce planning documents, white papers, market analyses, competitive analyses, strategic plans, or other decision-making and analytical documents that relate to how Your AdTech Products or AdTech Auction Mechanics interact with Google Cloud and/or any competing cloud services.
98. Produce all Documents reflecting how any non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server may experience cost savings, increased revenue, technical benefits (including reduced latency), or operational efficiencies when using Google Cloud.
99. Produce planning documents, white papers, market analyses, competitive analyses, strategic plans or other decision-making and analytical Documents that relate to Your marketing of Google Cloud for use in conjunction with any of Your AdTech Products.
100. Produce all communications between You and any Advertiser Ad Server, DSP, Ad Exchange, SSP, or Publisher Ad Server relating to Google Cloud or Your solicitation of their use of Google Cloud.
101. Produce all internal communications regarding Your decisions and strategies with respect to soliciting any Advertiser Ad Server, DSP, Ad Exchange, SSP, or Publisher Ad Server to use Google Cloud.

Material to/from Governmental Entities

102. Concerning Your acquisitions of DoubleClick, AdMob, AdMeld, Invite Media, and Adometry, produce all documents submitted in connection with Items 4(c) and 4(d) of the Hart-Scott-Rodino pre-notification filing forms, and any measurements, analyses, reports, studies, communications or discussions informing or relating to those submissions. The time period applicable to this Interrogatory is from January 1, 2007 to present.
103. Produce all Documents relating to the “initial estimate of the difference” “between what advertisers pay and what publishers receive from Google Ads” which You provided to the UK’s Competition and Markets Authority (see https://assets.publishing.service.gov.uk/media/5dfa0580ed915d0933009761/Interim_report.pdf, at page 202), including all material You submitted in support and all related correspondence. All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the Competition and Markets Authority.
104. Produce all Documents, including all communications, You sent to or received from the UK’s Competition and Markets Authority relating to their Market Study of Online Platforms and Digital Advertising (see https://assets.publishing.service.gov.uk/media/5dfa0580ed915d0933009761/Interim_report.pdf). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the Competition and Markets Authority.

105. Produce all Documents, including answers to interrogatories or written questions, responses to Civil Investigative Demands, subpoenas, correspondence, and all other written material, which You received from or submitted to the House Judiciary Committee relating to its investigation of Online Platforms (see <https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=109793> (last viewed June 22, 2020)). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the House Judiciary Committee.
106. Produce all Documents provided in response to the request for documents You received from the House Judiciary Committee dated September 13, 2019 (see [https://judiciary.house.gov/sites/democrats.judiciary.house.gov/files/documents/alphabet_inc._rfi_-_signed_\(003\).pdf](https://judiciary.house.gov/sites/democrats.judiciary.house.gov/files/documents/alphabet_inc._rfi_-_signed_(003).pdf) (last viewed June 22, 2020)). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the House Judiciary Committee.
107. Produce all correspondence between You and the United States Department of Justice (“DOJ”) in relation to any Civil Investigative Demand from DOJ to You dated January 1, 2019 or later, including but not limited to Civil Investigative Demands 30092, 30120, and 30121.
108. Produce all Documents, including special reports, answers to interrogatories or written questions, voluntary submissions, correspondence, and other written material, which You produced to or received from the United States Federal Trade Commission (“FTC”) in relation to any Order or Special Order issued to You pursuant to the FTC’s authority under Section 6(b) of the Federal Trade Commission Act on or after January 1, 2020. All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the FTC.

Internal Communications Channels

109. Produce all communications sent to, from, or on behalf of each of the Google Groups identified in Appendix A, and each additional Google Group, slack channel, wiki, hangout, and other electronic group messaging system or platform You identified in response to Interrogatories 123-124 above.
110. Produce all Documents owned by or accessible to each of the Google Groups identified in Appendix A, and each additional Google Group, slack channel, wiki, hangout, and other electronic group messaging system or platform You identified in response to Interrogatories 123-124 above.

General

111. Produce all Documents relating to any analysis, including substitution analysis, you have undertaken to assess or evaluate the extent to which the products or services of any other company compete with any of Your AdTech Products.
112. Produce all Documents relating to any analysis you have undertaken to assess or evaluate any indirect network effects between Your Advertiser-facing AdTech Products and Your Publisher-facing AdTech Products.
113. Produce all Documents relating to any analysis you have undertaken to assess or evaluate any barriers to entry and/or barriers to expansion faced by any other company who offers or potentially may offer any product or service in competition with any of Your AdTech Products; for purpose

of this request, “barriers” includes, but is not limited to, switching costs, default biases, information or data asymmetries, and access to inputs or customers.

114. Produce all communications between Google and the Interactive Advertising Bureau (IAB) concerning AMP, Header Bidding, and/or Supply Path Optimization.
115. Produce all Documents You reviewed or consulted in preparing any of Your responses to the Interrogatories in this CID and in the Original TX CID.
116. Produce Documents sufficient to support Your responses to the Interrogatories in this CID and in the Original TX CID.
117. To the extent You have not already done so, Produce all Documents responsive to the Requests for Documents in the Original TX CID in native format as specified in Exhibit B and in Instruction 3.A.C.a.
118. Produce Documents responsive to the Requests for Documents in this CID and in the Original TX CID which were or are associated with or created, held, or maintained by any of the Google Groups listed in Appendix A and/or any of the custodians listed in Appendix B. For purposes of clarity, neither this request nor Appendices A and B are intended to limit in any way the Google Groups and custodians from whom You must produce in response to this or any other CID; Your production must include all responsive non-privileged Documents from all of those Google Groups and custodians, as well as from all other sources in Your possession, custody, or control.
119. Produce all Documents, including all correspondence, sent to or from Sundar Pichai, Sergey Brin, and/or Larry Page which contain the phrase “Header Bidding” (or any synonymous term or phrase, e.g., “HB”).
120. Produce all Documents containing any of the following terms or phrases (or synonyms of any of the following terms or phrases):
 - a. Ads Data Hub; Ads Intelligence Hub; Authorized Buyers; Bernake; Demand Syndication; Dynamic Floor Pricing; Dynamic Price Optimization; Dynamic Reserve Price Optimization; Dynamic Revenue Sharing; Jedi; Jedi 4 networks (or “J4N”); Jedi Prime; Narnia; Narnia 2; Network Bidding; New Network; Optimized Competition; Project Yavin; Reserve Price Optimization; Supply path optimization; Truthful DRS (or “tDRS”).

APPENDIX A**Google Groups**

a4a-cam
a4a-discuss
admob-jedi
ads-auction
adwords-amp
adwords-amp-xfn
adx-auction
adx-buyside
adx-buyside-all
adx-buyside-comms
adx-call-reports
adx-comm
adx-drs
adx-dynamic-price
adx-pm
adx-sellside-all
amalgam-team
amalgam-core-leads
amalgam-leads
amalgam-steering
americas-mweb-community
amp-a4a-eng
amp-ads-analysis
amp-ads-analytics-eng
amp-ads-comms
amp-ads-integration
amp-adwords-discuss
amp-ais-wg
amp-analytics-internal
amp-api-eng
amp-buyside-eng
amp-core-leadership
amp-CURLS
amp-curlsv2
amp-dashboard-users
amp-data
ampersand
ampersand-metrics
ampersand-updates
amp-global
amp-harmony
amphtml-all
amphtml-core-eng
amphtml-core-pm
amphtml-discuss
amphtml-eng
amphtml-eng-github
amphtml-escalations

amphtml-outreach
amphtml-pm
amphtml-prod
amphtml-validation
amp-indexing-team
amp-ptms
amp-rev
amp-search
amp-tech-support
amp-viewer
amp-viewer-eng
amp-webresults
aog-amp-actions
auctions
bid-landscapes
bidmanager-all
bidmanager-docs
bidmanager-eng
bidmanager-leads
bidmanager-pm
bidmanager-team
btc-eng
cronut
cronut-core
dev-partners-gtm-amp
drx-all
drx-all
drx-amp
drx-amp-eng
drx-core-pm
drx-documentation
drx-eng-mgrs
drx-jedi
drx-jedi-eng
drx-notes
drx-pgm
drx-pm
exchange-buy-side-all
google-ad-exchange-eng
gtech-partners-amp
hbobservatory
integration-gpp
jedi-beta
jedi-buy
jedi-comms
jedi-pricing
jedi-tiger-team
modena
modena-volt
open-bidder
popfeeds-eng

pricing
project-magnolia
project-rey
pub-tags-team
rev-team
sc-amp
sell-performance
shopping-amp
stories-amp
stream-eng

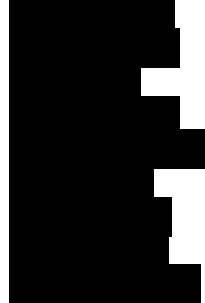
APPENDIX B**Custodians**

Jonathan Bellack

Brad Bender



Sam Cox



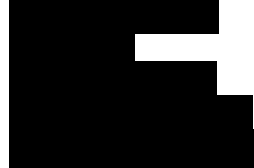
Nitish Korula

Chris LaSala

Neal Mohan



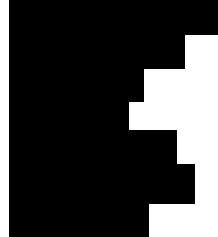
Aparna Pappu



Philipp Schindler



Scott Spencer



Sergey Brin



[REDACTED]

Sundar Pichai

[REDACTED]

[REDACTED]

Per Bjoke

[REDACTED]

Kent Walker

[REDACTED]

[REDACTED]

Nirmal Jayaram

[REDACTED]

Woojin Kim

[REDACTED]

[REDACTED]

George Levitte

[REDACTED]

Eisar Lipkovitz

[REDACTED]

[REDACTED]

EXHIBIT A

CERTIFICATE

STATE OF _____

COUNTY OF _____

_____, being duly sworn upon his/her oath states:

I am a representative of Alphabet Inc. and have knowledge of the facts and circumstances relating to the preparation of the answers to the interrogatories in this civil investigative demand. All of the requested information in the possession, custody, control, or knowledge of Alphabet Inc. has been set forth fully and accurately in the answers to interrogatories. I have knowledge of the facts and circumstances relating to the production of material in response to the requests for documents in this civil investigative demand. All of the requested material in the possession, custody, or control of Alphabet Inc. has been produced.

Title: _____

SUBSCRIBED and SWORN TO BEFORE ME this ____ day of _____, 2019.

NOTARY PUBLIC IN AND FOR THE
STATE OF _____

EXHIBIT B

SPECIFICATIONS FOR ELECTRONIC DOCUMENT PRODUCTION

DATA DELIVERY PRODUCTION REQUIREMENTS

Prior to any production, a meeting with the Antitrust Division is required to discuss the location of any potentially relevant Electronically Stored Information (ESI) – to include discussing E-mail, Network Shares, Local Storage, Databases, Mobile Devices, the Cloud, Chat Applications, and Social Networking.

This document describes the standard specifications and procedures for making an image-based production to the Antitrust Division of the Office of the Attorney General of Texas (“OAG”) in the form of Load Files.

- To ensure the efficient processing and review of any electronic production, legal, technical, and economic OAG staff need to resolve the details prior to production, and preferably before you or your vendor begin to gather and process responsive documents.
- Care should be taken to ensure that all responsive data and metadata are preserved in the collection process.
- These are not Unicode compliant specifications and do not cover production of translations.
 - Please contact OAG staff if either of these is anticipated.

I. Categories of Documents

Discussion regarding the details of an electronic production should focus on seven categories of documents:

- A. Email and other electronic messages (e.g. instant messaging and chat applications)
- B. Other electronic documents
- C. Hard copy documents
- D. Shared resources
- E. Databases
- F. Audio and video data
- G. Foreign language materials

General requirements for each category of document are outlined below. For information regarding document-specific metadata and bibliographic information, please refer to the enclosed Metadata Table of Requested Fields.

II. General Instructions for Productions

To ensure the efficient processing and review of any electronic production, contact the OAG before you or your vendor begin to gather and process responsive documents.

- A. A cover letter should be included with each production of data. The following information should be included in the letter:
 - 1. List of each piece of media (hard drive, thumb drive, DVD or CD) included in the production by the unique number assigned to it, and readily apparent on the physical media.

2. List of custodians, identifying:
 - a. The Bates range (and any gaps therein) for each custodian
 - b. Total number of records for each custodian
 - c. Total number of images for each custodian
 - d. Total number of native files for each custodian
3. List of fields in the order in which they are listed in the data file
4. Time zone in which emails were standardized during conversion (email collections only)
5. Label all media with the following:
 - a. Case number, if applicable; if in response to an ID, the number of the ID
 - b. Volume Name
 - c. Production date
 - d. Bates range
 - e. Disk number (1 of X), if applicable
- B. Documents created or stored electronically **MUST** be produced in their original electronic format, not printed to paper or PDF.
- C. Data should be produced using whichever media requires the least number of deliverables.
- D. Organize productions by custodian, unless otherwise instructed. All documents from an individual custodian should be confined to a single load file.
- E. All productions should be checked and produced free of computer viruses.
- F. All produced media should be encrypted.
- G. Password-Protected Files: to the extent any produced documents are password-protected, the Producing Party must either unlock the document prior to production or provide passwords in order to allow access by the Receiving Party. If the Producing Party is unable to process a document because of unknown passwords or encryption, the Parties shall meet and confer to determine the appropriate steps to take with respect to such document.
- H. Production load files may also be electronically submitted via the internet (*e.g.*, file share sites, FTP) Load Files in excess of 5GB should be discussed with the OAG in advance of submission.

III. Categories of Documents

A. Email, Attachments, and Other Electronic Messages

Email and other electronic messages (*e.g.*, instant messages (IMs)) should be produced as image files with related searchable text, metadata and bibliographic information. Depending on

how the company's systems represent names in email messages or IMs, a table of names or contact lists from custodians may be required.

Email repositories, also known as email databases (*e.g.*, Outlook .PST, Lotus .NSF), can contain a variety of items, including messages, calendars, contacts, tasks, etc. For purposes of production, responsive items should include the "Email" metadata/database fields outlined in the Metadata Table, including but not limited to, all parent items (mail, calendar, contacts, tasks, notes, etc.) and child files (attachments of files to email or other items), with the parent/child relationship preserved. Similar items found and collected outside an email repository (*e.g.*, .MSG, .EML, .HTM, .MHT) should be produced in the same manner.

Each IM conversation should be produced as one document.

Outlook (.PST) and Lotus Notes (.NSF) email files may be produced in native file format. Production of these native files should be discussed in advance with the OAG.

Electronic phone records should be discussed with the OAG in advance of production to determine the optimal format of production.

B. Other Electronic Documents

Electronic documents include word-processing documents, spreadsheets, presentations, and all other electronic documents not specifically discussed elsewhere. These documents should be produced as image files with related extracted text, metadata and bibliographic information and links to the original native file. All passwords and encryption must be removed from electronic documents prior to production. The native file documents should be named per the BEGBATES#.

Refer to the Metadata Table of Requested fields for required metadata fields.

1. The following are examples of file types that should be produced in their native formats¹:
 - a. Word document, such as .DOC and DOCX
 - b. Excel spreadsheets, such as .XLS and XLSX.
 - c. PowerPoint presentations, such as .PPT and .PPTX
 - d. Microsoft Access databases, such as .MDB and .ACCDB
 - e. WordPerfect documents, such as .WPD
 - f. Adobe Acrobat documents, such as .PDF

¹ The listed extensions are merely common examples of file extensions associated with those formats and are not to be construed as limitations. In other words, Word documents with extensions other than .DOC and .DOCX should also be produced in native format.

2. Spreadsheets

Spreadsheets should be produced in native format (*e.g.*, as .XLSX files), with extracted text for the entire document, metadata, and bibliographic information. Provide a single placeholder image of the spreadsheet. The placeholder image must contain at a minimum the BEGDOC#, FILENAME, and FILEPATH. The Bates range for a spreadsheet should be a single number (*e.g.*, ABC-JD-00000001 – ABC-JD-00000001). The linked native file name should match the BEGDOC# with the appropriate file extension.

3. Presentations

Presentations should be produced in full slide image format along with speaker notes (which should follow the full images of the slides) with related extracted text, metadata, and bibliographic information. Presentations should also be produced in native format (*e.g.*, as .PPT files). The linked native file name should match the BEGDOC#, FILENAME, and FILEPATH.

4. Hidden Text

All hidden text (*e.g.*, track changes, hidden columns, hidden slides, mark-ups, notes) shall be expanded and rendered in the extracted text file and associated image file.

5. Embedded Files

All embedded objects (*e.g.*, graphical files, Word documents, Excel spreadsheets, .wav files) that are found within an electronic document shall be produced so as to maintain the integrity of the source document as a single document. For purposes of production, the embedded files shall remain embedded as part of the original source document. Internal documents that are embedded or referenced via hyperlinks and hyperlinked shared resources must be produced as separate, attached documents following the instructions in this appendix.

6. Image-Only Files

All image-only files (non-searchable PDFs, multi-page TIFFs, Snipping Tool screenshots, etc., as well as all other images that contain text) shall be produced with associated OCR text, metadata, and identifying information. Each production shall state the number of image-only files and non-imaged files produced.

7. Archive File Types

Archive file types (*e.g.*, .zip, .rar) must be uncompressed for processing. Each file contained within an archive file should be produced as a child to the parent archive file. If the archive file is itself an attachment, that parent/child relationship must also be preserved.

8. Other File Types and Non-PC or Non-Windows Based Systems

Other file types, such as those generated by financial or graphic design software, or file types from non-PC or non-Windows based systems (*e.g.*, Apple, UNIX, LINUX systems), should be discussed with the OAG in advance of production to determine the optimal format of production.

C. Hard-Copy Documents

Hard-copy documents (*e.g.*, documents ordinarily maintained in paper) are to be produced as black-and-white image files, except where noted below, with related searchable OCR text and identifying information. Special attention should be paid to ensure that hard-copy documents are produced as they are kept, reflecting attachment relationships between documents and information about the file folders within which each document is found. In addition, multi-page documents must be produced as single documents (*i.e.*, properly unitized) and not as several single-page documents. Where color is required to interpret the document, such as hard copy photos, and certain charts, its image **MUST** be produced in color. These color images are to be produced as JPEG format. Hard-copy photographs should be produced as color JPEGs, if originally in color, or grayscale TIFF files if originally in black-and-white.

D. Shared Resources

Shared Resources should be produced as separate custodians if responsive custodians have access to them or if they contain responsive documents. The name of the group having access would be used as the custodian name, *i.e.* Marketing Execs or Accounting Dept. The company will separately provide a brief description of each shared resource that includes a list of the custodians who have access to that shared resource.

E. Database Productions

Production of enterprise databases are not addressed in these specifications and must be discussed with the appropriate legal and technical staff to determine the optimal production format; these will usually fall outside the scope of an image-based production. Care must be taken to ensure that all responsive databases and their metadata are preserved.

F. Audio and Video Data

Audio and video file types not specifically discussed elsewhere should be discussed with the OAG in advance of production to determine the optimal format of production.

G. Foreign Language Materials

Production of Foreign Language Materials not addressed in these specifications must be discussed with the appropriate legal and technical staff to determine the optimal production format prior to production.

IV. Processing

A. De-Duplication

Before doing any de-duplication, provide the OAG with a written description of the method that will be used to de-duplicate (including which elements are compared and what hash codes are used), and what is considered a duplicate. Then confirm that your approach is acceptable to the OAG. De-duplication of hard-copy documents, or that of “loose” electronic documents (*e.g.*, presentation slides located on the custodian’s C: drive) against email attachment versions of those same documents, is unacceptable. The integrity of any produced email and any related “document family” must be maintained except as limited by any claim of privilege. De-duplication should occur both vertically within each custodian and horizontally across

custodians. Vertical de-duplication is crucial when a production includes electronic documents from back-ups. Horizontal de-duplication must be done in a way that preserves (and produces) information on blind copy (Bcc) recipients of emails and other custodians whose files contain the duplicates that will be eliminated from the production.

A Custodian Append File is to be produced when de-duplicating ACROSS custodians (*i.e.*, horizontal de-duplication) and data is produced on a rolling basis. The file must be provided on an incremental basis **starting with the second submission**; as more custodians are discovered for previously produced documents, this file is updated with **only the new** custodian information.

The Custodian Append File is a two-field delimited file consisting of the BEGDOC#s of the previously delivered document and the **new** custodian names for the duplicates of those records that would otherwise have been produced in the subsequent (new) submissions.

These specifications do not allow for near de-duplication or email threading. These formats must be discussed separately with the OAG and consent obtained prior to the use of such techniques for production.

B. Document Numbering

Documents must be uniquely and sequentially Bates-numbered across the entire production, with an endorsement burned into each image. Each Bates number shall be of a consistent length, include leading zeros in the number, and unique for each produced page. Bates numbers should contain **no more** than three segments. For example, a company identifier, a middle segment identifying the custodian, and a sequential page counter with connecting hyphens. The number of digits in the numeric portion of the format should not change in subsequent productions, nor should spaces, hyphens, or other separators be added or deleted. Under no circumstances should bates numbers contain embedded spaces, slashes (/), backslashes (\), carats (^), ampersands (&), hash marks (#), plus signs (+), percent signs (%), dollar signs (\$), exclamation marks (!), pipes (|), any character used as a delimiter in the metadata load files, or any character not allowed in Windows file-naming convention (, \ / : * ? " < > | ~ @ ^). Bates numbers may contain hyphens (-).

C. Privilege Designations

Documents redacted pursuant to any claim of privilege will be designated "Redacted" in the SPECPROPERTIES field as described in the Metadata Table. Appropriately redacted searchable text (OCR of the redacted images is acceptable), metadata, and bibliographic information must also be provided. All documents that are part of a document family that includes a document withheld pursuant to any claim of privilege will be designated "Family Member of Privileged Doc" in the SPECPROPERTIES field as described in the Metadata Fields table for all other documents in its family. Placeholder images with BEGDOC#, FILENAME, FILEPATH and reason withheld (*e.g.*, "Privileged") should be provided in place of the document images of the privileged document.

**IMAGE AND TEXT FILE SPECIFICATIONS,
AND LOAD FILE CONFIGURATION**

I. Load File Configuration

- Each production must have a unique VOLUMENAME (e.g., TXAG_VOL001)
- The VOLUMENAME should increase sequentially with each subsequent production (e.g., TXAG_VOL001, TXAG_VOL002, etc.)
- Under the VOLUMENAME folder, the production should be organized into 4 subfolders:
 - DATA (should contain metadata, DAT, OPT, custodian append, etc. files)
 - IMAGES (may contain subfolders, with no more than 5,000 images per folder)
 - NATIVES (may contain subfolders, containing linked native files, with no more than 5,000 files per folder)
 - TEXT (may contain subfolders, with document-level text files)

II. Image/Native File Specifications

- Black-and-white Group IV Single-Page TIFFs (300 DPI). Color images should be provided in .jpg format when color is necessary.
- Image file names should match the page identifier for that specific image and end with the .tif (or .jpg if needed) extension.
 - Example: ACME-ABC-0003072.TIF
- File names cannot have embedded spaces, commas, ampersands, slashes, back slashes, hash marks, plus signs, percent signs, exclamation marks, any character used as a delimiter in the metadata load files, or any character not allowed in Windows file-naming convention. (, & \ / # + % ! : * ? “ < > | ~ @ ^)
- Images for a given document must reside together in the same folder.
- The maximum number of image files should be limited to 5,000 per folder.
- Native file names should match the BEGDOC entry for that specific record and end with the appropriate file extension.
- The maximum number of native files in a subfolder should be limited to 5,000 per folder.
- Any encryption or password protection will be removed from all native format files produced.

III. Extracted or Searchable Text File Specifications and Control List Configuration

- Extracted text, as opposed to OCR, must be provided with all records, except for documents that originated as hard copy or redacted documents.
 - For hard copy documents, provide OCR text.
 - For redacted documents, provide OCR text for the redacted version.
- There should be a single extracted/OCR text file per document, in ASCII Text format only.
- The name of the text file should be the same as the document's first page/Bates number, with a TXT extension: BEGDOC#.TXT.
- There must be a carriage return and line feed (CRLF) no later than the 250th character of the first line of every text file.

- All soft and hard returns in the native electronic or image file should be replicated as a Carriage Return Line Feed (CRLF) in the text file (i.e. the lines of text in the file terminate with a CRLF in correlation with the appearance of the native electronic or rendered image file). Pay particular attention to not allow multi-line paragraphs of e-mails to be rendered as a single, extended line of text.
- Text files should include page breaks that correspond to the “pagination” of the image files. Place text files under a “TEXT” folder and provide a Control List file for loading in the “DATA” folder on the delivery media.

IV. Image Load File (.opt) Configuration

- Page level comma-delimited file containing seven fields per line.
 - PageID,VolumeLabel,ImageFilePath,DocumentBreak,FolderBreak,BoxBreak,PageCount
 - PageID – PageID of the item being loaded. MUST be identical to the image name (less the file extension).
 - VolumeLabel – Optional. If used it is preferable that it match the VOLUMENAME assigned in the corresponding metadata load file.
 - ImageFilePath – The path to the image from the root of the delivery media.
 - DocumentBreak – The letter “Y” denotes the first page of a document. If this field is blank the page is not the first page of a document.
 - FolderBreak – Leave empty
 - BoxBreak – Leave empty
 - PageCount – Optional
- Example - ABC-JD00030005,,\ABC002\Images\001\ ABC-JD-00030005.tif,Y,,

V. Metadata Load File Delimiters and Configuration

- Field Separator ¶ (ASCII 020)
- Text Qualifier p (ASCII 254)
- Substitute Carriage Return or New Line in data ® (ASCII 174)
- Multi-value separator (Do Not Follow with Space) ; (ASCII 059)
- Date format YYYYMMDD (date type fields only)
- Time format HH:MM:SS in 24-hour format (e.g., 04:32 pm formatted to 16:32:00 – Do not include AM, PM, or Timezone² indicators).
- There should be one line for every record in the load file. A carriage return and line feed (CRLF) must appear at the end of each record and ONLY at the end of each record.
- The first row of each metadata load file should be a header row containing the field names. Field names must match OAG Metadata Table field names.
- All requested fields should be present in the metadata load file whether data exists or not. Field order must remain consistent in subsequent productions.

² Note that Timezone information is still required in a different metadata field.

VI. METADATA TABLE OF REQUESTED FIELDS

Field Name	Field Description	Field Type
VOLUMENAME	Production volume number (e.g., ABC001-001)	Note Text
BEGDOC	Start Bates (including prefix) -- No spaces or special characters	Note Text
ENDDOC	End Bates (including prefix) - No spaces or special characters	Note Text
ATTACHRANGE	Range of the BEGDOC value of the parent record to the ENDDOC value (including prefix) of the last child record (for example, ABC-JD-00001201 ABC-JD-00001220); populated for all documents in the group. Empty if the record is NOT in family grouping	Note Text
BEGATTACH	Starting Bates of attachment range	Note Text
ENDATTACH	Ending Bates of attachment range	Note Text
PARENTBATES	Parent record's BEGDOC#, including prefix (populated ONLY in child records)	Note Text
CHILDBATES	Child document list: BEGDOC# of each child, separated by semicolons [:] (populated ONLY in parent records)	Multi-Entry
NUMPAGES	Page count	Integer
SPECPROPERTIES	Indicate all that apply : Record Type: E-Doc, E-Doc Attachment, Email, Email Attachment, Hard Copy, Calendar Appt Other Notations: Translation of [DOCID of original], Translated as [DOCID of Translation] Privilege Notations: Redacted, Privileged, Family Member of Priv Doc	Multi-Entry
CUSTODIAN	Custodian(s) / source(s) - format: Last, First or ABC Dept	Multi-Entry
TIMEZONE	The TimeZone from which the native file was collected.	Note Text
FROM	Author of the Email or Calendar item (as formatted on the original)	Note Text
TO	Recipients of the Email (as formatted on the original)	Multi-Entry
CC	Names of the individuals who were copied on the Email (as formatted on the original)	Multi-Entry
BCC	Names of the individuals who were blind-copied on the Email (as formatted on the original)	Multi-Entry
SUBJECT	Email, document, or calendar subject	Note Text
DATESENT	Date the Email was sent. Format: YYYYMMDD.	Date

Field Name	Field Description	Field Type
TIMESENT	Time Email was sent -- Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; time zone indicators cannot be included)	Time
DATERECEIVED	Date Email was received. Format: YYYYMMDD.	Date
TIMERECEIVED	Time Email was received. Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; time zone indicators cannot be included)	Time
HEADER	The internet header information for Email sent through the internet;	Note Text
INTERNETMSGID	Globally unique identifier for a message which typically includes messageid and a domain name. Example: <0E6648D558F338179524D555@m1p.innovy.net	Note Text
MESSAGEID	Proprietary email database/mailstore/post office file associated with centrally managed enterprise email servers. Microsoft Outlook PST EntryID, the UniqueID (UNID) for Lotus Notes, equivalent value for other proprietary mailstore formats.	Note Text
CONVERSATIONINDEX	Email Thread Identification	Note Text
IMPORTANCE	Email flag indicating priority level set for message	Note Text
DATECREATED	Date electronic file was created. Format: YYYYMMDD.	Date
REVISION	Revision number extracted from metadata of electronic documents	Note Text
DATESAVED	Date native file was last modified. Format: YYYYMMDD.	Date
ORGANIZATION	Company field extracted from the metadata of an electronic document	Note Text
KEYWORDS	List of keywords, tags, and categories extracted from the metadata of an electronic document	
AUTHOR	Author field value extracted from the metadata of a native file	Note Text
MODIFIED	Last Modified as	
SPEC#	Subpoena/request paragraph number to which the document is responsive	Multi-Entry
SEARCHVALUES	List of search terms used to identify record as responsive (if used)	Multi-Entry
HASHMD5	Document MD5 hash value (used for de-duplication or other processing) NOTE: only one hash value metadata field need be provided—either MD5 hash or SHA1 hash.	Note Text
HASHSHA	Document SHA1 hash value (used for de-duplication or other processing) NOTE: only one hash value metadata field need be provided—either MD5 hash or SHA1 hash.	Note Text

Field Name	Field Description	Field Type
FILESIZE	File size in Bytes (integer value only - do not include unit of measure or decimal places - e.g., 568)	Integer
FILENAME	File name of electronic document with the file extension (e.g., Re: tomorrow sounds fun.eml; Read this today.docx)	Note Text
APPLICATION	Application used to create electronic document (e.g., Excel, Outlook, Word) as reflected in metadata	Note Text
FILEEXTENSION	File extension of electronic document (e.g., .eml, .msg, .xlsx)	Fixed Length 5 chars
FOLDERLABEL	Email folder path (sample: Inbox\Active); or Hard Copy folder/binder title/label	Note Text
FILEPATH	File path to electronic document as it existed in its original environment	Note Text
NATIVELINK	File path location to the current native file location on the delivery medium	Note Text

EXHIBIT C

Exhibit C**Google Groups**

a4a-cam
a4a-discuss
ad-exchange-eng
admob-jedi
ads-auction
adsense-eng
aswords-all
adwords-amp
adwords-amp-xfn
adwords-bidding
adwords-bidding-eng
adwords-displayads-eng
adx-auction
adxbuyer-comms
adx-buyer-tiger-team
adx-buyside
adx-buyside-all
adx-buyside-comms
adx-buyside-comms-questions
adx-buyside-commz-core
adx-buyside-mobile
adx-buyside-sales
adx-call-reports
adx-comm
adx-dfp-questions
adx-drs
adx-dynamic-price
adx-eng
adx-openrtb
adx-openrtb-eng
adx-openrtb-questions
adx-pm
adx-sellside-all
adx-sellside-fe-eng
adx-services
adx-questions
adx-xfp-eng
adx-xfp-verification
adx-xfp-verification-eng
adxsales
amalgam-team
amalgam-core-leads
amalgam-leads
amalgam-steering
americas-mweb-community
amp-a4a-eng

amp-ads-analysis
amp-ads-analytics-eng
amp-ads-comms
amp-ads-integration
amp-adwords-discuss
amp-ais-wg
amp-analytics-internal
amp-api-eng
amp-buyside-eng
amp-core-leadership
amp-coreteam
amp-CURLS
amp-curlsv2
amp-dashboard-users
amp-data
ampersand
ampersand-metrics
ampersand-updates
amp-global
amp-harmony
amphtml-all
amphtml-core-eng
amphtml-core-pm
amphtml-discuss
amphtml-eng
amphtml-eng-github
amphtml-escalations
amphtml-outreach
amphtml-pm
amphtml-prod
amphtml-validation
amp-indexing-team
amp-og
amp-partnerships
amp-ptms
amp-rev
amp-search
amp-tech-support
amp-viewer
amp-viewer-eng
amp-webresults
aog-amp-actions
auctions
awbid
awbid-commercialization
awbid-commz

awbid-eng
awbid-smarttrb
beyondtheclick
bfm
bfm-announce
bfm-core
bfm-display
bfm-programmaticbid-landscapes
bidder-frontend-eng
bidmanager-all
bidmanager-docs
bidmanager-eng
bidmanager-leads
bidmanager-pm
bidmanager-team
btc-eng
buyside-policy-contracts
competitors
cronut
cronut-core
dbm-exchanges-integration
dbm-schema-council
dlck-dfp5redteam
dclk-dfpquestions
dclk-internalnotes
deal_review
demand
dev-partners-gtm-amp
dfpall
dfp-internalnotes
dfp-questions
display-gdn-launch-notify
display-meetingnotes
display-buyside-pm
drx-all
drx-amp
drx-amp-eng
drx-announce
drx-bow
drx-buyside-eng
drx-buyside-pm
drx-comms-docs
drx-core-pm
drx-deal-serving
drx-designdoc
drx-documentation
drx-eng
drx-eng-five
drx-eng-mgrs
drx-experiments
drx-fe-buyside-eng

drx-fe-eng
drx-fe-latency-police
drx-fe-latency-report
drx-fe-yield-eng
drx-gaia
drx-gaia-reporting
drx-gaia-serving
drx-head-app-steering
drx-identity-eng
drx-indirect
drx-indirect-commercialization
drx-indirect-eng
drx-jedi
drx-jedi-eng
drx-launch-approvers
drx-limits-council
drx-mediation-detection
drx-mobile-eng
drx-mobile-serving
drx-nera
drx-notes
drx-pgm
drx-prds
drx-pm
drx-reporting
drx-reporting-backend-team
drx-rtb-nyc
drx-serving
drx-suite-commercialization
drx-tiger-team
drx-unification
drx-unification-comms
drx-ux
dv3-pm
dv3-eng
dv360-custom-bidding
dv360-exchange-intergration
ebay-internal-pbs
ebay-internal-tams
exchange-buy-side-all
gbx-all
gbx-leads
gdn-communications
gdn-core
gdn-leads
gdn-meetingnotes
gdn-meeting-notes
gdn-performance-pm
gdn-pm
gdn-steering-core
gdn-steering-meeting

gdn-steering-notes
gfp-servinggoogle-ad-exchange
google-ad-exchange-eng
gpt-eng
gpt-pod
gtech-exchange
gtech-partners-amp
hbobservatory
integration-grp
jedi-beta
jedi-blue-core
jedi-blue-data-access
jedi-buy
jedi-comms
jedi-deals
jedi-discrepancies
jedi-knights
jedi-meetingnotes
jedi-pricing
jedi-tiger-team
jedi-whale-payments
linkedin-adxbuyside
modena
modena-volt
monetization-pm
open-bidder
open-bidder-eng
opg-global-dfp
popfeeds-eng
pricing
project-magnolia
project-rey
pub-tags-team
publisher-policy-contracts
rev
rev-team
revforce
revforce-core
revforce-mtg
rewarded-demand-dev
rewarded-demand-updates
rtb-eng
rtb-open-bidding
rtb-questions
sc-amp
sell-performance
sell-side-gsl
sell-side-leads
sell-side-update
sellside-experiment-approvers
sellside-gsl-leads

sellside-launch-approvers
sellside-pm
sellside-review-attendees
sellside-ux
shopping-amp
skyray-bidding
skyray-bidding-eng
stories-amp
stream-eng
xbid-eng
xbid-eng-leads
xbid-eng-code-review
xbid-intel-team
xbid-grp
xbid-serving
xfp-announce
xfp-api
xfp-api-cr
xfp-api-eng
xfp-commercialization
xfp-deep-thoughts
xfp-engprod
xfp-exec-updates-global
xfp-exec-updates-na
xfp-discuss
xfp-eng
xfp-fe-core
xfp-fe-eng
xfp-fe-prod
xfp-leads
xfp-managers
xfp-notes
xfp-pm
xfp-revenue
xfp-schema
xfp-schema-council
xfp-serving-engprod
xfp-serving-notes
xfp-serving-ny
xfp-serving-releases
xfp-serving-reviews
xfp-tech
xfp-ux
xfp-writers
xfp-xfunctional-status-na
xfp-ym
xfp-ym-cr
xfp-ym-eng
yavin-core
yavin-steering